TFT-LCD MONITOR

Chassis	Model
MJ15AS*	510N
MJ15BS*	510T
MJ17AS*	710N
MJ17BS*	710T
MJ19AS*	910N, 911N, 920N
MJ19BS*	910T
MJ19ES*	913N
MJ19US*	915N
MJ19QS*	913T, 910B
MJ19DS*	912T

SERVICE *Manual*

TFT-LCD MONITOR

Simple Stand

Pivot Stand

Simple Stand

CONTENTS

1. Precautions
2. Product Specifications
3. Disassembly & Reassembly
4. Alignments & Adjustments
5. Troubleshooting
6. Exploded View & Parts List
7. Electrical Parts List
8. Block Diagram
9. Wiring Diagram
10. PCB Layout
11. Schematic Diagrams
12. Panel Description

1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC power jack before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3 Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):

   WARNING: Do not use an isolation transformer during this test.

   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

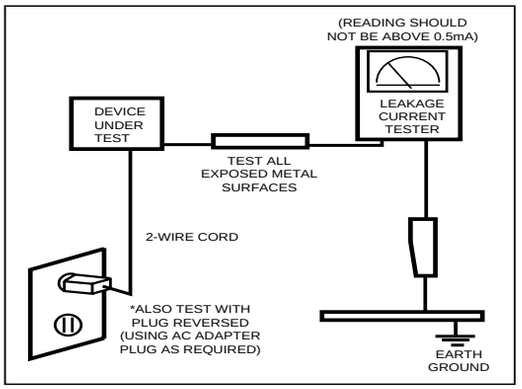


Figure 1-1. Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2 Servicing Precautions

WARNING: **An electrolytic capacitor installed with the wrong polarity might explode.**

Caution: **Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.**

Note: **If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.**

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
   (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

2 Product Specifications

2-1 MJ15AS*/MJ15BS*/MJ17AS*/MJ17BS* Specifications

Item	Description	
	MJ15AS*/MJ15BS*	MJ17AS*/MJ17BS*
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally black transmissive, 15-Inch viewable, 0.297 (H) x 0.297 (V) mm pixel pitch	TFT-LCD panel, RGB vertical stripe, normally black transmissive, 17-Inch viewable, 0.264 (H) x 0.264 (V) mm pixel pitch
Scanning Frequency	Horizontal : 31 kHz ~ 61 kHz (Automatic) Vertical : 50 Hz ~ 75 Hz	Horizontal : 30 kHz ~ 81 kHz (Automatic) Vertical : 56 Hz ~ 75 Hz
Display Colors	16.2 Million colors	
Maximum Resolution	Horizontal : 1024 Pixels Vertical : 768 Pixels	Horizontal : 1280 Pixels Vertical : 1024 Pixels
Input Video Signal	Analog, 0.714 Vp-p ± 5% positive at 75 Ω, internally terminated	[Digital(TMDS): MJ15BS*, MJ17BS*]
Input Sync Signal	Type : Separate H/V sync, Composite H/V Level : TTL level (V high ≥ 2.0 V, V low ≤ 0.8 V), Sync-on-Green (≤ –0.25 V)	
Maximum Pixel Clock rate	80 MHz	135 MHz
Active Display Horizontal/Vertical	304.1 mm / 228.1 mm	338 ± 3 mm / 270 ± 3 mm
AC power voltage & Frequency	AC 90 ~ 264 Volts, 60/50 Hz ± 12V / 3A	AC 90 ~ 264 Volts, 60/50 Hz ± 3 Hz
Power Consumption	25W (normal)	34W (normal)
Dimensions	Simple Stand / Pivot Stand	Simple Stand
Set (W x D x H) Package	13.3 x 2.2 x 10.7 Inches (338.0 x 56.3 x 272.0 mm) State of stand disassembled 13.3 x 6.9 x 13.3 Inches (338.0 x 175.0 x 337.0 mm) State of stand installed 15.3 x 4.9 x 15.1 Inches (388 x 125 x 383 mm)	14.6 x 2.4 x 12.4 Inches (370.0 x 60.3 x 316.0 mm) State of stand disassembled 14.6 x 6.9 x 15 Inches (370.0 x 175.0 x 381.0 mm) State of stand installed 17.9 x 5.6 x 17.2 Inches (455 x 141 x 437 mm)
Weight (Set/Package)	3.1 kg (6.8 lbs) / 4.25 kg (9.4 lbs)	4.5 kg (9.9 lbs) / 6.15 kg (13.6 lbs)
Dimensions	-	Pivot Stand
Set (W x D x H) Package	-	14.6 x 2.4 x 12.4 Inches (370.0 x 60.3 x 316.0 mm) State of stand disassembled 14.6 x 7.5 x 16.0 Inches (370.0 x 190.9 x 406.8 mm) State of stand installed 20.0 x 10.1 x 16.0 Inches (508 x 256 x 407 mm)
Weight (Set/Package)	-	6.25 kg (13.8 lbs) / 7.95 kg (17.5 lbs)
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10 % ~ 80 % Storage Temperature : -13°F ~ 113°F (-25°C ~ 45°C) Storage Humidity : 5 % ~ 95 %	
• Designs and specifications are subject to change without prior notice.		

2-3 Pin Assignments

Sync Type / Pin No.	15-Pin D-Sub Signal Cable Connector		
	Separate	Composite	Sync-on-green
1	Red	Red	Red
2	Green	Green	Green + H/V Sync.
3	Blue	Blue	Blue
4	GND	GND	GND
5	DDC Return (GND)	DDC Return (GND)	DDC Return (GND)
6	GND-R	GND-R	GND-R
7	GND-G	GND-G	GND-G
8	GND-B	GND-B	GND-B
9	DDC Power Input (+5V)	DDC Power Input (+5V)	DDC Power Input (+5V)
10	Self Raster	Self Raster	Self Raster
11	GND	GND	GND
12	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)
13	H-Sync.	H/V-Sync.	Not Used
14	V-Sync.	Not Used	Not Used
15	DDC Clock (SCL)	DDC Clock (SCL)	DDC Clock (SCL)

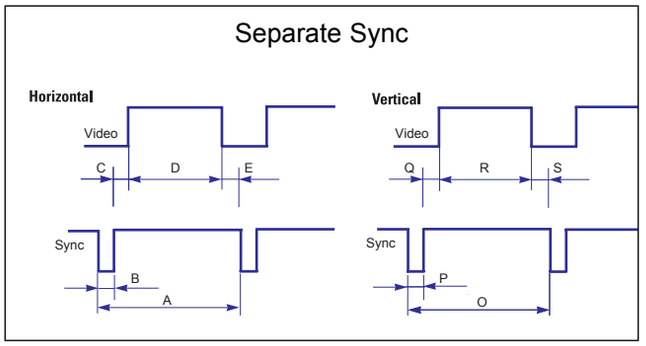
Sync Type / Pin No.	24P DVI-D		
1	Rx2-	13	No Connection
2	Rx2+	14	+5V_M
3	GND	15	Self Raster
4	No Connection	16	+5V_M
5	No Connection	17	Rx0-
6	DDC Clock (SCL)	18	Rx0+
7	DDC Data (SDA)	19	NC
8	NC	20	No Connection
9	Rx1-	21	No Connection
10	Rx1+	22	NC
11	NC	23	RxC+
12	No Connection	24	RxC-

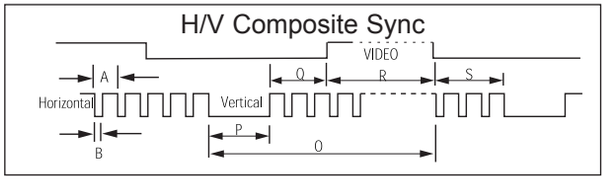
2-4 Timing Chart

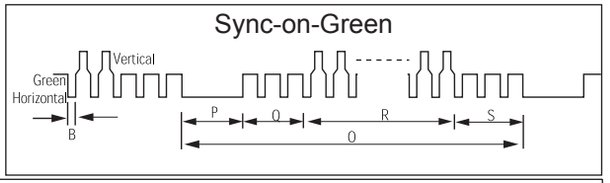
This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 2-1 Timing Chart

Mode / Timing	IBM		VESA (MJ15AS*/MJ15BS*/MJ17AS*/MJ17BS*/MJ19AS*/MJ19BS*/MJ19ES*/MJ19US*/MJ19QS*)					VESA(MJ17AS*/MJ17BS*/ MJ19AS*/MJ19BS*/MJ19ES*/MJ19US*/MJ19QS*)	
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz 640x480	800/60 Hz 800x600	800/75 Hz 800x600	1024/60 Hz 1024x768	1024/75 Hz 1024x768	1280/60 Hz 1280x1024	1280/75 Hz 1280x1024
fH (kHz)	31.469	31.469	37.500	37.879	46.875	48.363	60.023	63.981	79.975
A µsec	31.777	31.778	26.667	26.400	21.333	20.677	16.660	11.852	12.504
B µsec	3.813	3.813	2.032	3.200	1.616	2.092	1.219	1.037	1.067
C µsec	1.589	1.589	3.810	2.200	3.232	2.462	2.235	2.296	1.837
D µsec	26.058	26.058	20.317	20.000	16.162	15.754	13.003	9.259	9.481
E µsec	0.318	0.318	0.508	0.000	0.323	0.369	0.203	0.000	0.119
fV (Hz)	70.087	59.940	75.000	60.317	75.000	60.004	75.029	60.020	75.025
O msec	14.268	16.683	13.333	16.579	13.333	16.666	13.328	16.005	13.329
P msec	0.064	0.064	0.080	0.106	0.064	0.124	0.050	0.047	0.038
Q msec	0.858	0.794	0.427	0.607	0.448	0.600	0.466	0.594	0.475
R msec	13.155	15.761	12.800	15.840	12.800	15.880	12.795	15.630	12.804
S msec	0.191	0.064	0.027	0.0261	0.021	0.062	0.017	0.016	0.013
Clock Freq. (MHz)	28.322	26.175	31.500	40.000	49.500	75.000	78.750	108.000	135.000
Polarity H.Sync	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive
V.Sync	Positive	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate







A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

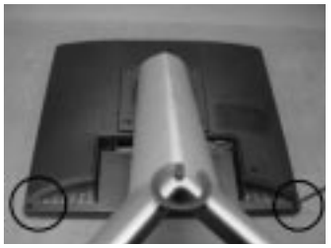
3 Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the MJ15AS*/MJ17AS*/MJ19AS*/MJ15BS*/MJ17BS*/MJ19BS*/MJ19ES* TFT-LCD monitors.

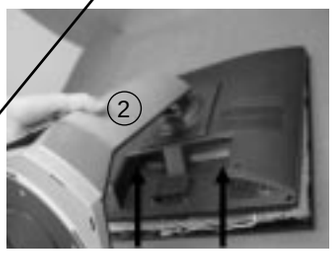
⚠ **WARNING: This monitor contains electrostatically sensitive devices. Use caution when handling these components.**

3-1 Disassembly

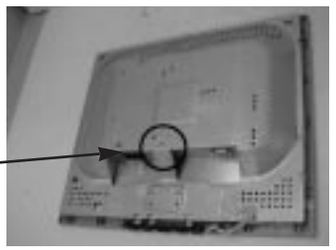
⚠ **Cautions: 1. Disconnect the monitor from the power source before disassembly.**



1. After placing monitor on the cushioned table, remove two screws on the left and right of the bottom.

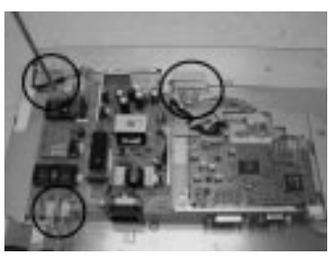


2. Disconnect back cover from monitor after grabbing the right edge of the set ((1)) and lifting the stand((2)).



3. Remove 2 screws from the shield.

4. Disconnect function cable from the cover front and lift up the panel. Remove 4 screws from the panel shield. (Right / Left)

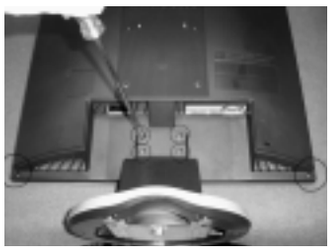


5. Lift up the panel shield and carefully remove the silicon glue on the cables with a nipper.
⚠**Caution : Lamp wire may be easily damaged. Please use caution when removing the silicon.**

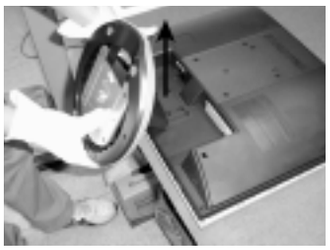
6. Remove 7 screws, 4 hexa screws from the boards and lift up the boards.
   ⚠ Caution : When repairing panel only, disconnect just LVDS cable, Panel-Lamp / Wire marked in circle in the picture without removing the screws on board in order to lift the board up.

7. This picture is panel.

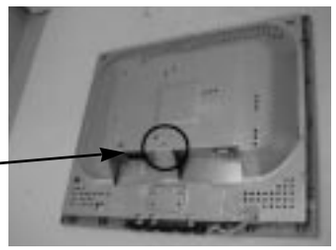
3-2 MJ19ES*/MJ19BS*/MJ19US*/MJ19QS* Disassembly



1. After placing monitor on the cushioned table, remove 6 screws on the left and right of the bottom.



2. Lift the stand and lift up the back cover.



3. Remove 2 screws from the shield.

4. Disconnect function cable from the cover front and lift up the panel. Remove 4 screws from the panel shield. (Right / Left)

5. Lift up the panel shield and disconnect cables.

6. Remove 5 screws, 2 hexa screws from the boards and lift up the boards.
   ⚠ Caution : When repairing panel only, disconnect just LVDS cable, Panel-Lamp / Wire marked in circle in the picture without removing the screws on board in order to lift the board up.

7. This picture is panel.

3-2 Reassembly

Reassembly procedures are in the reverse order of disassembly procedures.

4 Alignments and Adjustments

This section of the service manual explains how to use the RS232 JIG.
This function is needed for AD board change and program memory (IC110) change.

4-1 Required Equipment

The following equipment is necessary for adjusting the monitor:

- Computer with Windows 95, Windows 98, or Windows NT.
- MTI-2031 DDC MANAGER JIG

4-2 Automatic Color Adjustment

To input video, use 16 gray or any pattern using black and white.

1. Select english for OSD language.
2. Press the " ⏎(Enter/Source)" key for 5 seconds.

4-3 DDC EDID Data Input

1. Input DDC EDID data when replacing AD PCB.
2. Receive/Download the proper DDC file for the model from HQ quality control department.
   Install the below jig (Figure 1) and enter the data.

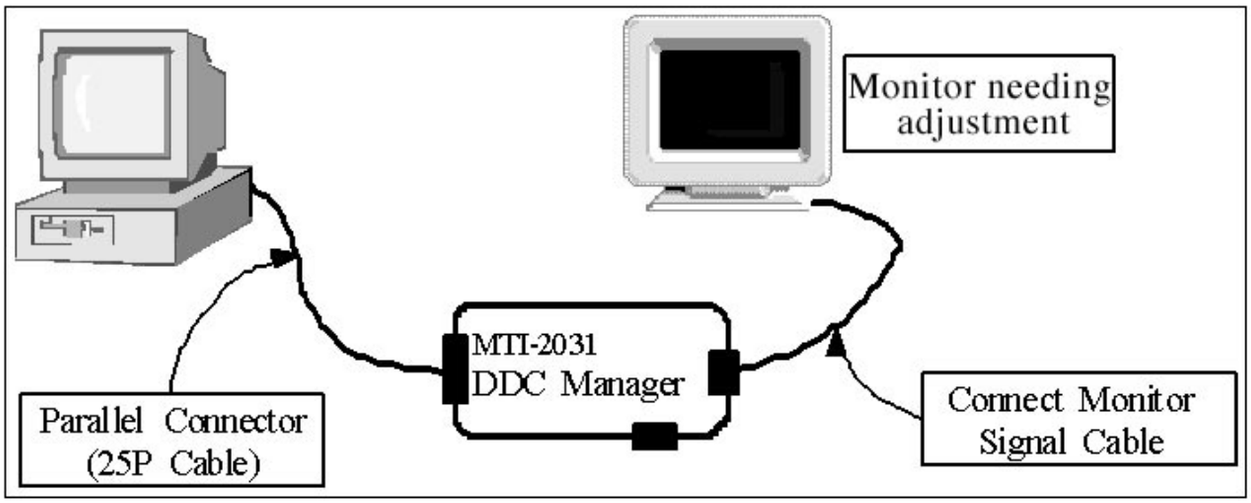


Figure 1.

4-4 OSD Adjustment When Replacing Panel

1. Adjust brightness and contrast to 0. Then, press the ⏎ (Enter/Source) key for 5 second.
   Service function OSD will appear on screen.
2. Press the + key to place the cursor on the panel. Press the menu key for 5 seconds.

4-5 OSD Adjustment When Replacing Lamp Only

1. Adjust brightness and contrast to 0. Then, press the exit key for 5 seconds.
   Service function OSD will appear on the screen.
2. Press the + key. Select upper lamp and press the menu key for 5 seconds.
   Then, select lower lamp and press the menu key for 5 seconds.

✵ ***Note :*** *Please be sure to read the following instructions for details on service function.*

4-6 Service Function Spec.

4-6-1 How to Display Service Function OSD

1. The value for brightness and contrast should be changed to zero.
2. Within 5 seconds, press the ↵ (Enter/Source) key.
3. Service function OSD will be displayed.

※ If you want to disable the service function OSD, you will have to power off.

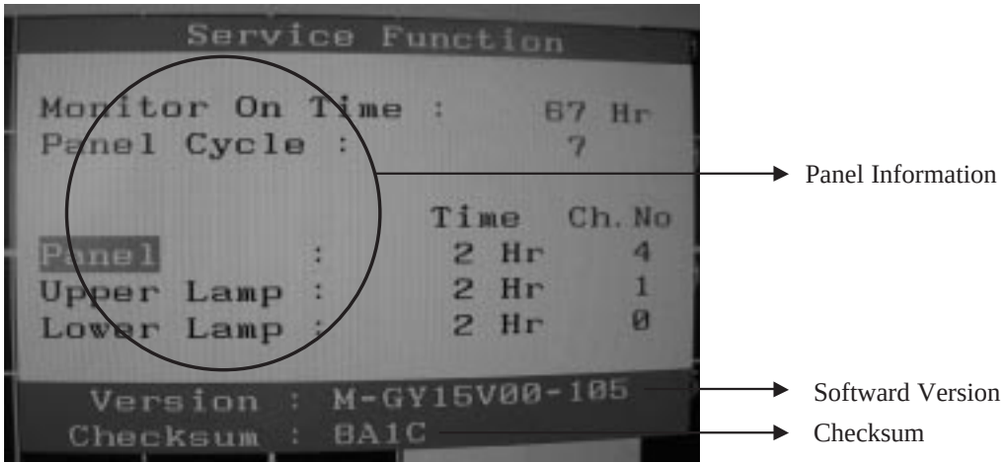


Figure 2. The example of service function OSD

The service function OSD is based on a grid of 29 columns x 12 rows.

The service function OSD consists of panel information, software version and MICOM checksum.

4-6-2 How to Control Service Function OSD

1. With the panel selected on OSD, whenever you press the right key, the base color will change to blue from "Panel" to "Upper Lamp", "Lower Lamp".

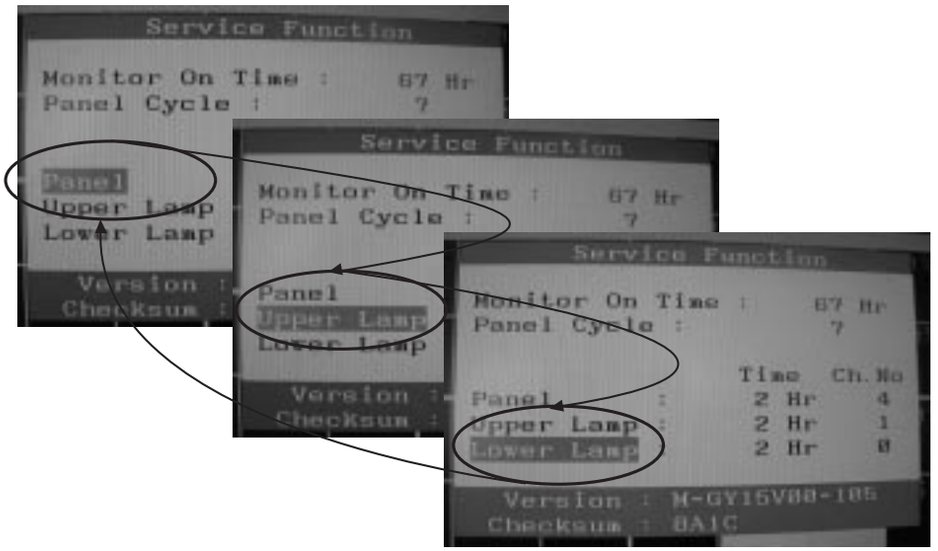


Figure 3.

4-6-3 How to Control Service Function OSD

•After change the panel or lamp, you must reset service function OSD.

•The case of panel change

After changeing the panel, press the menu key within 5 seconds,.
Then, panel Ch. No increases one step and the panel time information is reset to zero.
Simultaneously, other information is reset to zero (Upper/Lower lamp, Panel cycle).

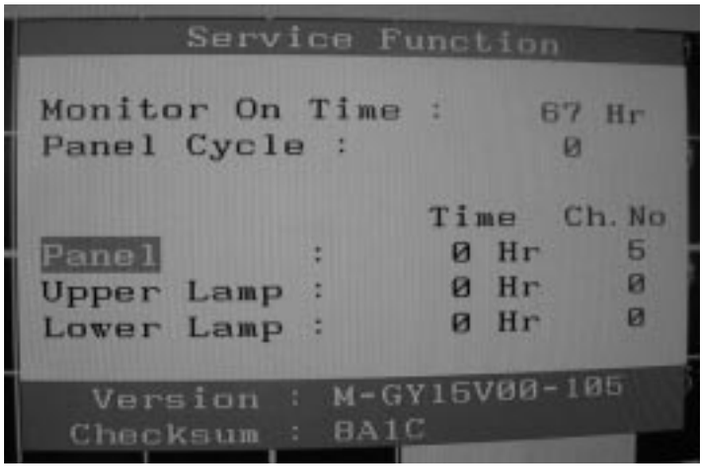

Service Function
Monitor On Time : 67 Hr
Panel Cycle : 0
Time Ch. No
Panel : 0 Hr 5
Upper Lamp : 0 Hr 0
Lower Lamp : 0 Hr 0
Version : M-GY15V00-105
Checksum : 8A1C

Figure 4.

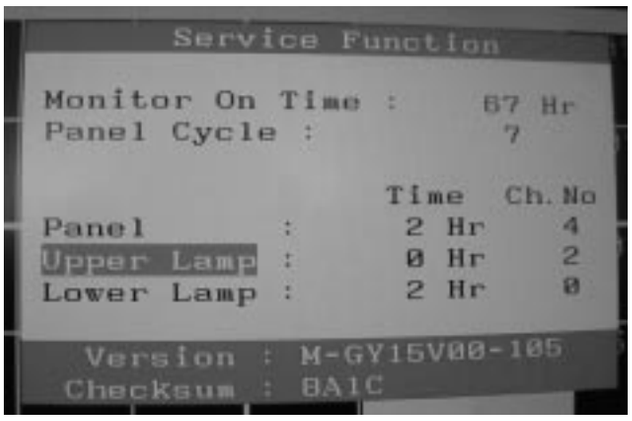
4-6-4 How to Control Service Function OSD

•In the case of Upper Lamp or Lower Lamp change

After changeing the Upper Lamp or Lower Lamp,

1. Select the Upper Lamp or Lower Lamp
2. Press the Menu key within an 5 seconds.

Then, Ch. No and time will be reset to zero (selected item only).


Service Function
Monitor On Time : 67 Hr
Panel Cycle : 7
Time Ch. No
Panel : 2 Hr 4
Upper Lamp : 0 Hr 2
Lower Lamp : 2 Hr 0
Version : M-GY15V00-105
Checksum : 8A1C

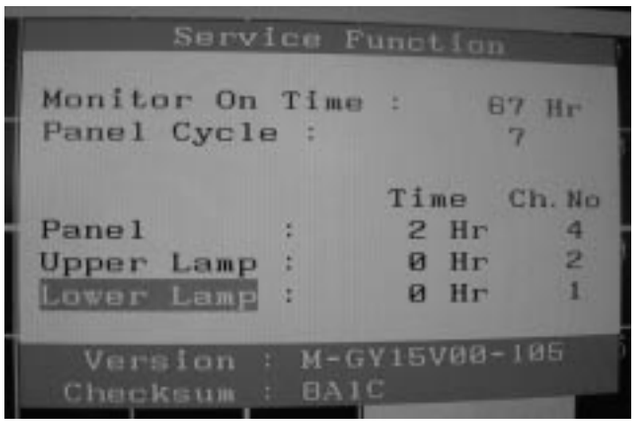

Service Function
Monitor On Time : 67 Hr
Panel Cycle : 7
Time Ch. No
Panel : 2 Hr 4
Upper Lamp : 0 Hr 2
Lower Lamp : 0 Hr 1
Version : M-GY15V00-105
Checksum : 8A1C

Figure 5, 6.

Memo

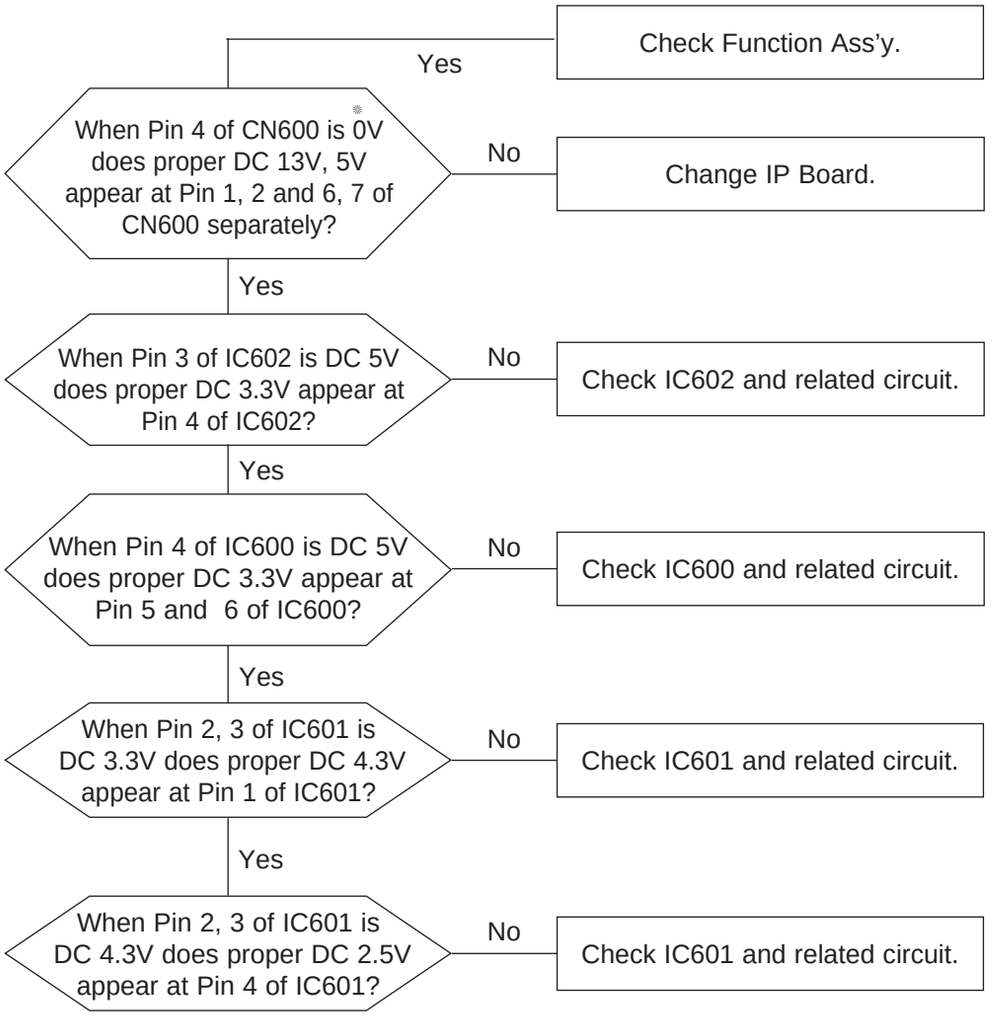
5 Troubleshooting

Notes: 1. Before troubleshooting, setup the PC's display as below.
- Resolution: 1024 x 768
- H-frequency: 61 kHz
- V-frequency: 75 Hz

2. If no picture appears, make sure the power cord is correctly connected.
3. Check the following circuits.
- No raster appears: Function PBA, Main PBA, I/D PBA
- 5V develop but no screen: Main PBA
- 5V does not develop: I/D PBA

4. If you push and hold the "↵(Enter, Source)" button for more than 5 seconds, the monitor automatically returns to the factory preset.

5-1-1 No Power (MJ15A*/MJ15B*)


When Pin 4 of CN600 is 0V* does proper DC 13V, 5V appear at Pin 1, 2 and 6, 7 of CN600 separately?
Yes
No
Check Function Ass'y.
Change IP Board.
When Pin 3 of IC602 is DC 5V does proper DC 3.3V appear at Pin 4 of IC602?
Yes
No
Check IC602 and related circuit.
When Pin 4 of IC600 is DC 5V does proper DC 3.3V appear at Pin 5 and 6 of IC600?
Yes
No
Check IC600 and related circuit.
When Pin 2, 3 of IC601 is DC 3.3V does proper DC 4.3V appear at Pin 1 of IC601?
Yes
No
Check IC601 and related circuit.
When Pin 2, 3 of IC601 is DC 4.3V does proper DC 2.5V appear at Pin 4 of IC601?
Yes
No
Check IC601 and related circuit.

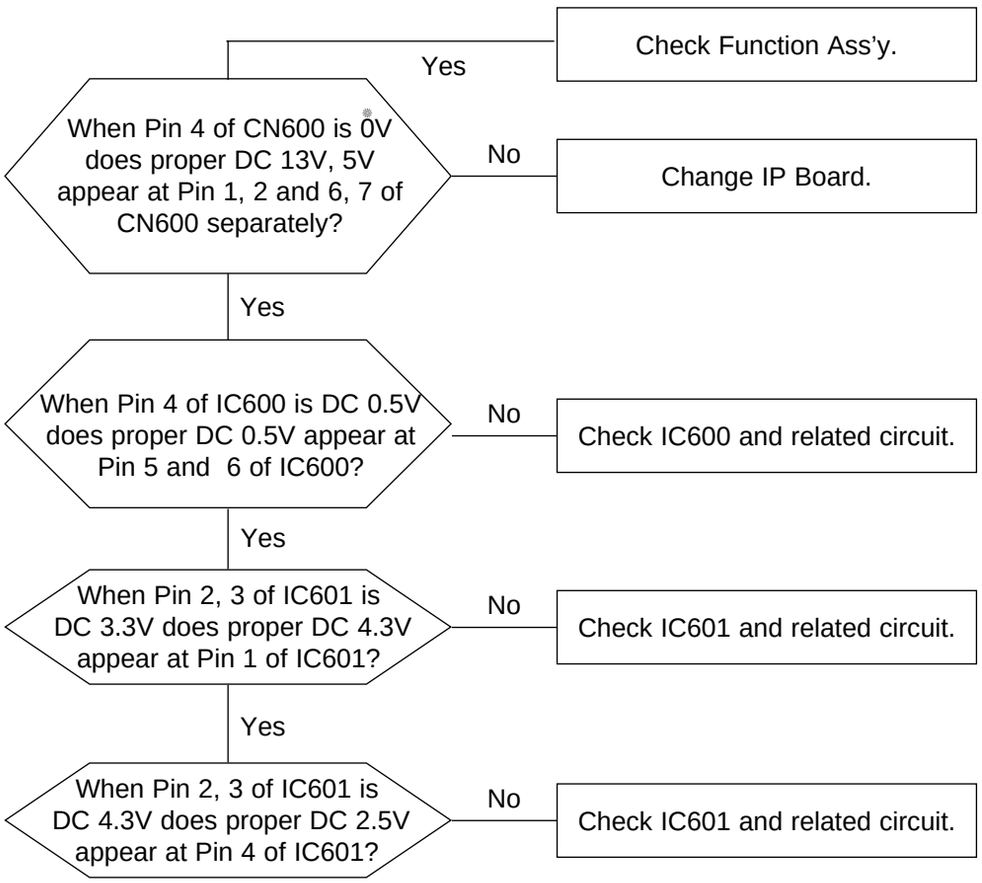
* 0V means power on state.
When the monitor work well except DPMS and power switch off,
0V should be applied to number 4 of CN600.

Notes: 1. Before troubleshooting, setup the PC's display as below.
- Resolution: 1280 x 1024
- H-frequency: 64 kHz
- V-frequency: 60 Hz

2. If no picture appears, make sure the power cord is correctly connected.
3. Check the following circuits.
- No raster appears: Function PBA, Main PBA, I/P PBA
- 5V develop but no screen: Main PBA
- 5V does not develop: I/P PBA

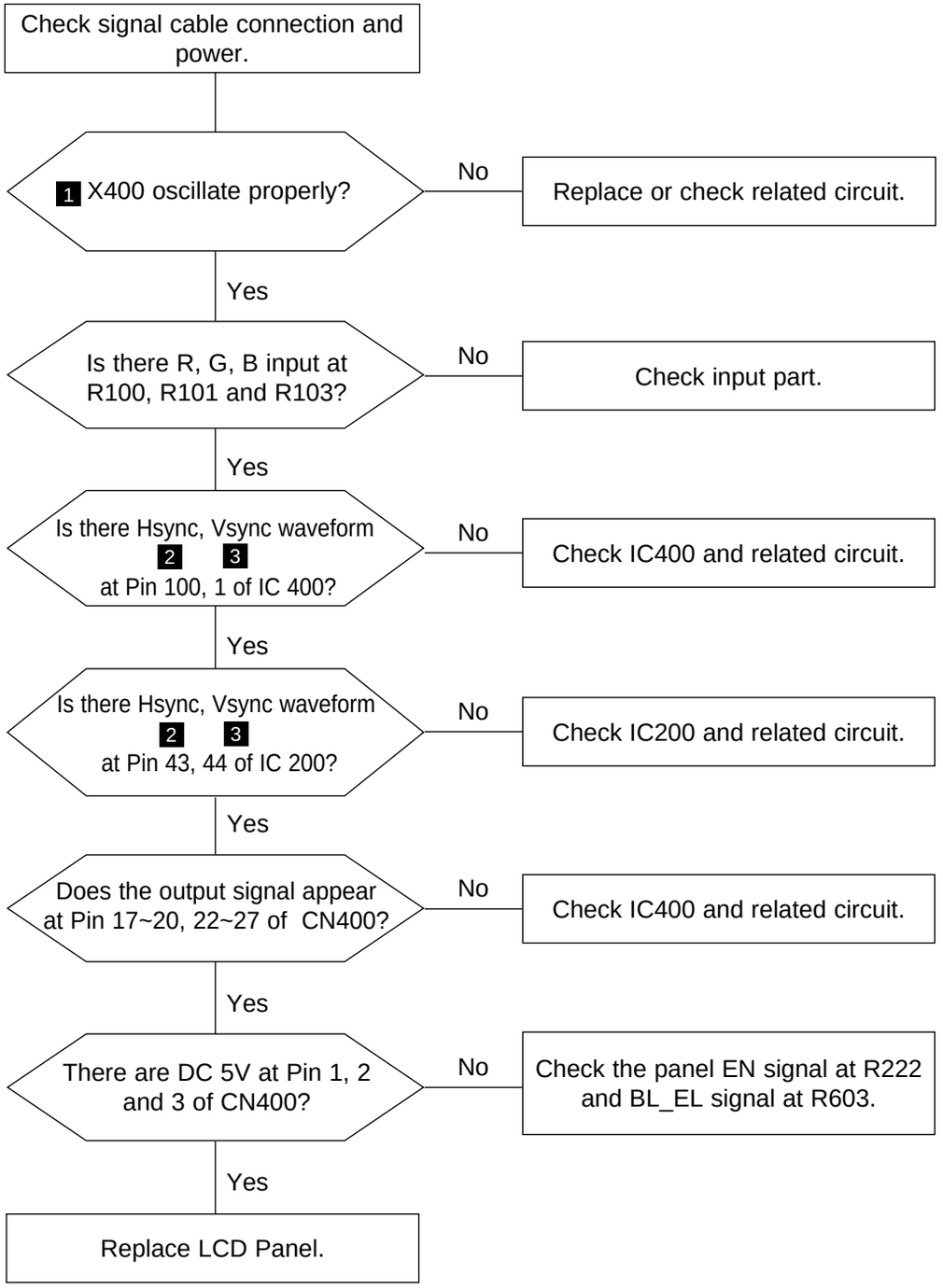
4. If you push and hold the "↵(Enter/Source)" button for more than 5 seconds, the monitor automatically returns to the factory preset.

5-1-2 No Power (MJ17A*/MJ19A*/MJ17B*/MJ19B*/MJ19E*/MJ19US*/MJ19QS*)


When Pin 4 of CN600 is 0V* does proper DC 13V, 5V appear at Pin 1, 2 and 6, 7 of CN600 separately?
Yes
No
Check Function Ass'y.
Change IP Board.
When Pin 4 of IC600 is DC 0.5V does proper DC 0.5V appear at Pin 5 and 6 of IC600?
Yes
No
Check IC600 and related circuit.
When Pin 2, 3 of IC601 is DC 3.3V does proper DC 4.3V appear at Pin 1 of IC601?
Yes
No
Check IC601 and related circuit.
When Pin 2, 3 of IC601 is DC 4.3V does proper DC 2.5V appear at Pin 4 of IC601?
Yes
No
Check IC601 and related circuit.

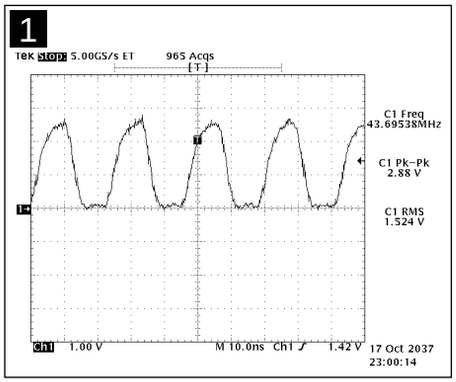
* 0V means power on state.
When the monitor work well except DPMS and power switch off,
0V should be applied to number 4 of CN600.

5-2-1 No Video (ANALOG)

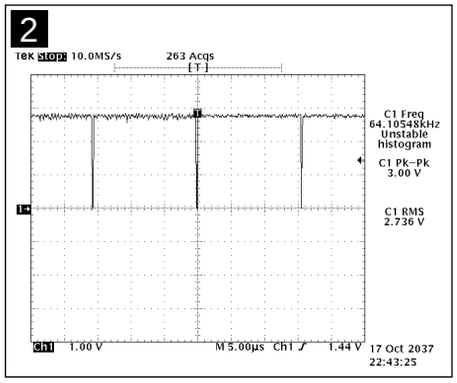

Check signal cable connection and power.
1 X400 oscillate properly?
No
Replace or check related circuit.
Yes
Is there R, G, B input at R100, R101 and R103?
No
Check input part.
Yes
Is there Hsync, Vsync waveform 2 3 at Pin 100, 1 of IC 400?
No
Check IC400 and related circuit.
Yes
Is there Hsync, Vsync waveform 2 3 at Pin 43, 44 of IC 200?
No
Check IC200 and related circuit.
Yes
Does the output signal appear at Pin 17~20, 22~27 of CN400?
No
Check IC400 and related circuit.
Yes
There are DC 5V at Pin 1, 2 and 3 of CN400?
No
Check the panel EN signal at R222 and BL_EL signal at R603.
Yes
Replace LCD Panel.

WAVEFORMS

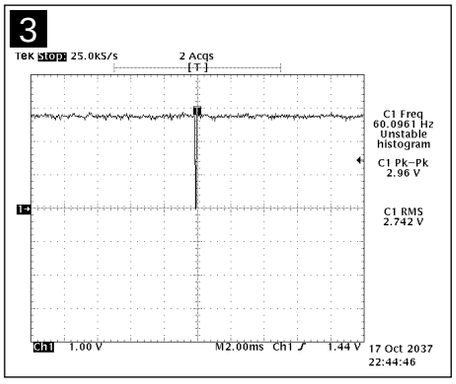
1



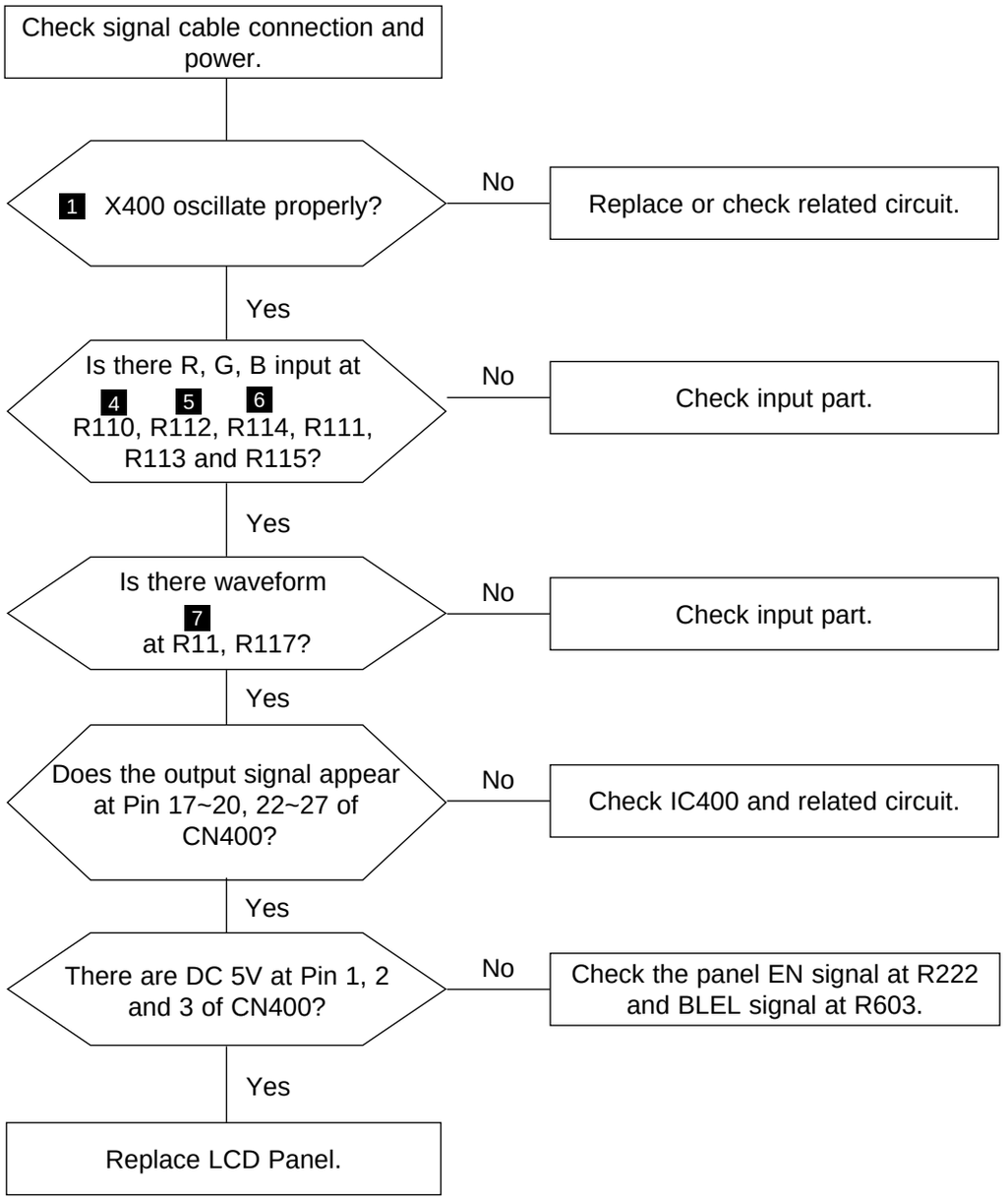
2



3

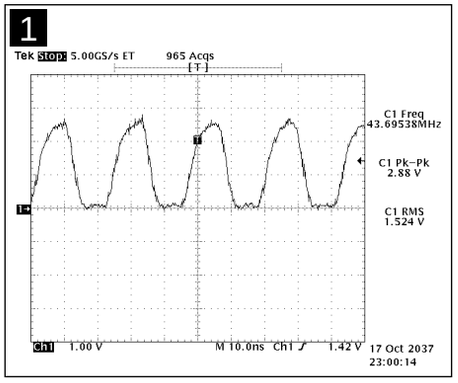


5-2-2 No Video (DIGITAL)

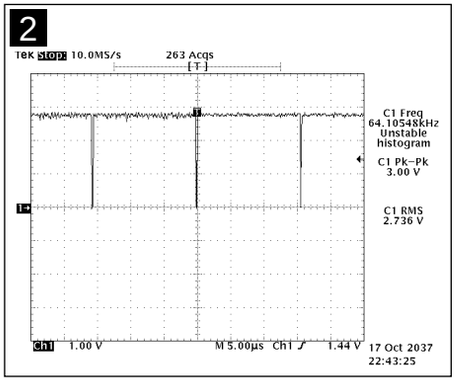

Check signal cable connection and power.
1 X400 oscillate properly?
No
Replace or check related circuit.
Yes
Is there R, G, B input at 4 5 6 R110, R112, R114, R111, R113 and R115?
No
Check input part.
Yes
Is there waveform 7 at R11, R117?
No
Check input part.
Yes
Does the output signal appear at Pin 17~20, 22~27 of CN400?
No
Check IC400 and related circuit.
Yes
There are DC 5V at Pin 1, 2 and 3 of CN400?
No
Check the panel EN signal at R222 and BLEL signal at R603.
Yes
Replace LCD Panel.

WAVEFORMS

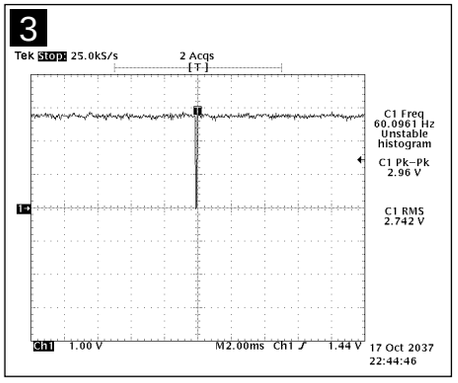
1



2



3



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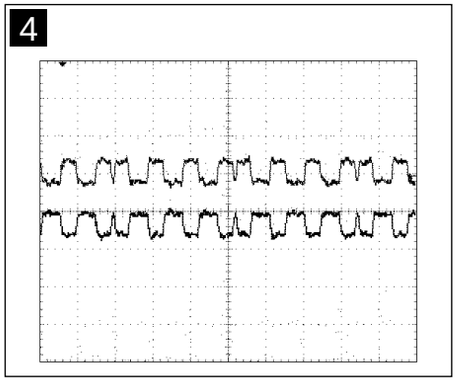
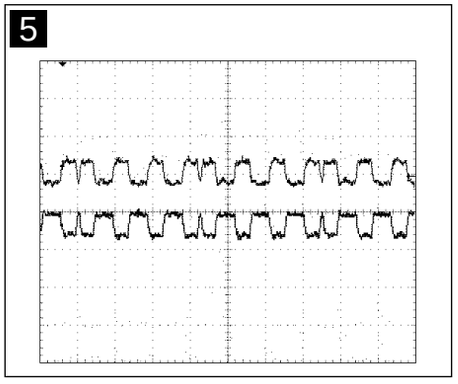
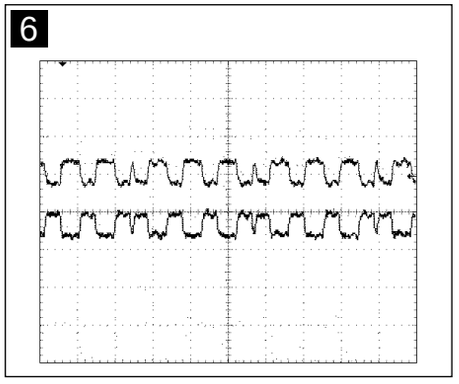


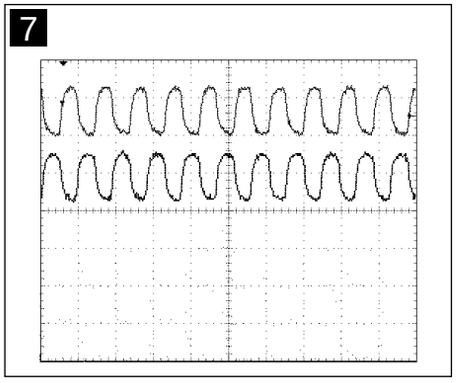
5



6



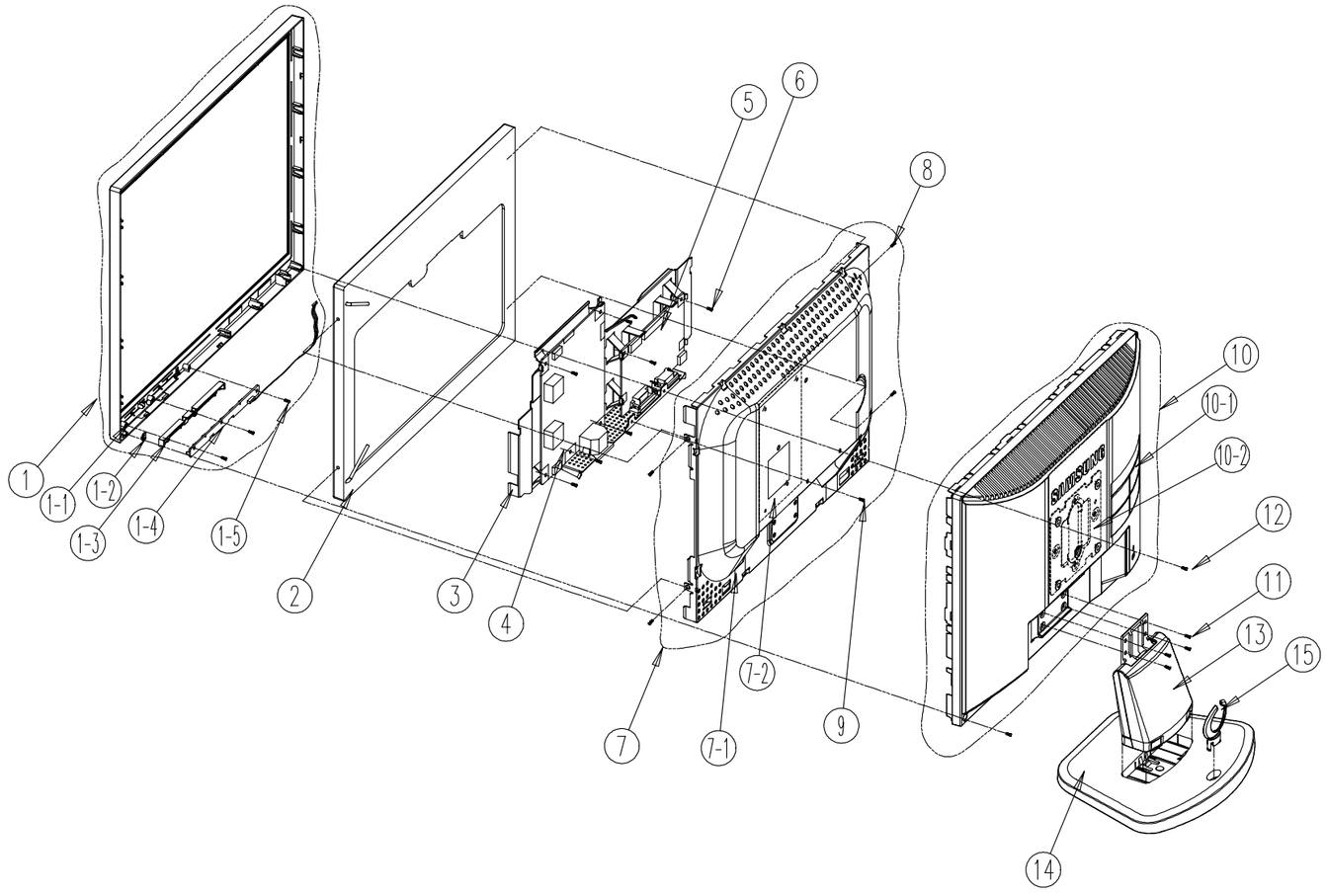
7



6 Exploded View and Parts List

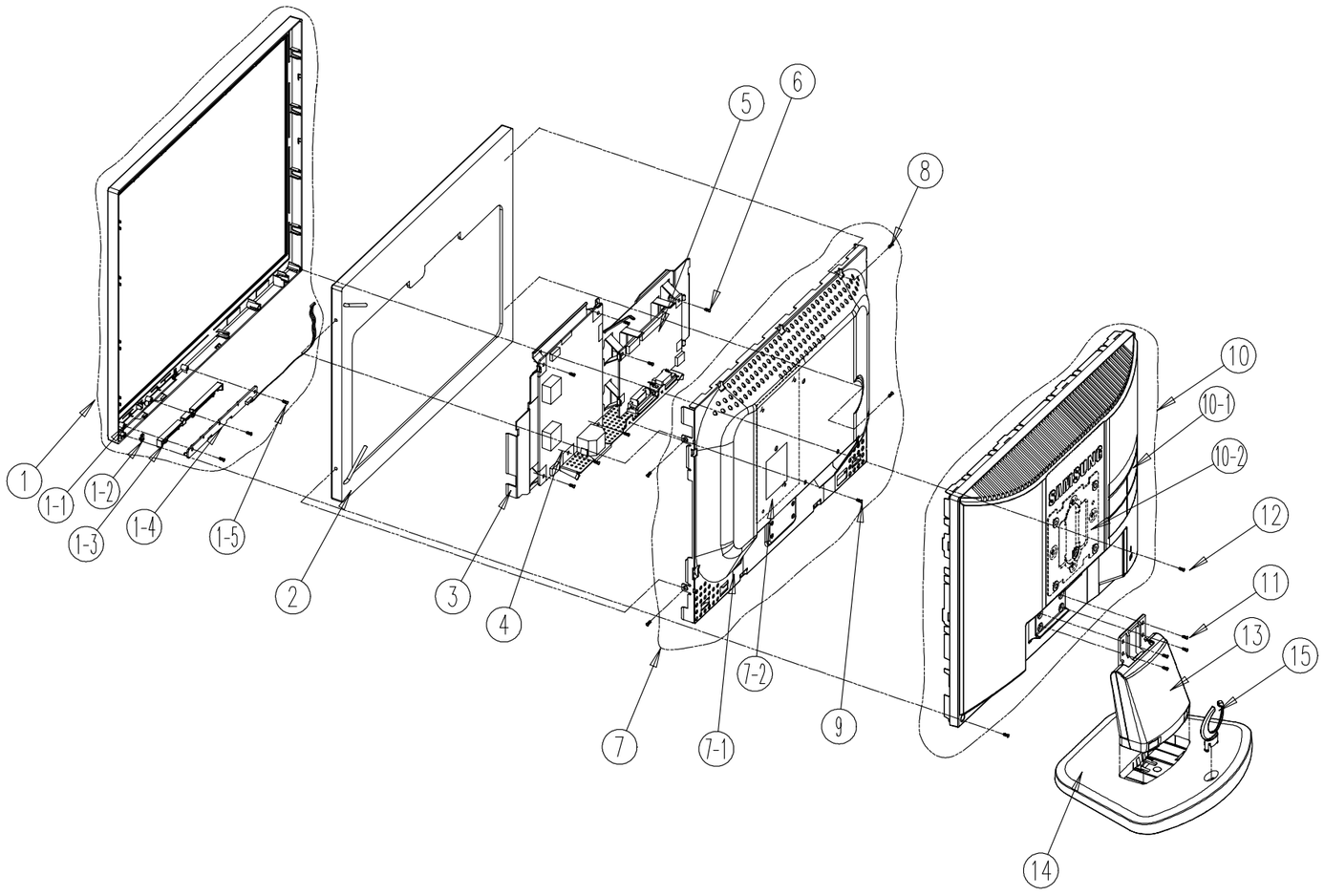
❋ You can search for updated part codes through ITSELF web site.
URL : http://itself. sec. samsung.co.kr

6-1 MJ15AS*



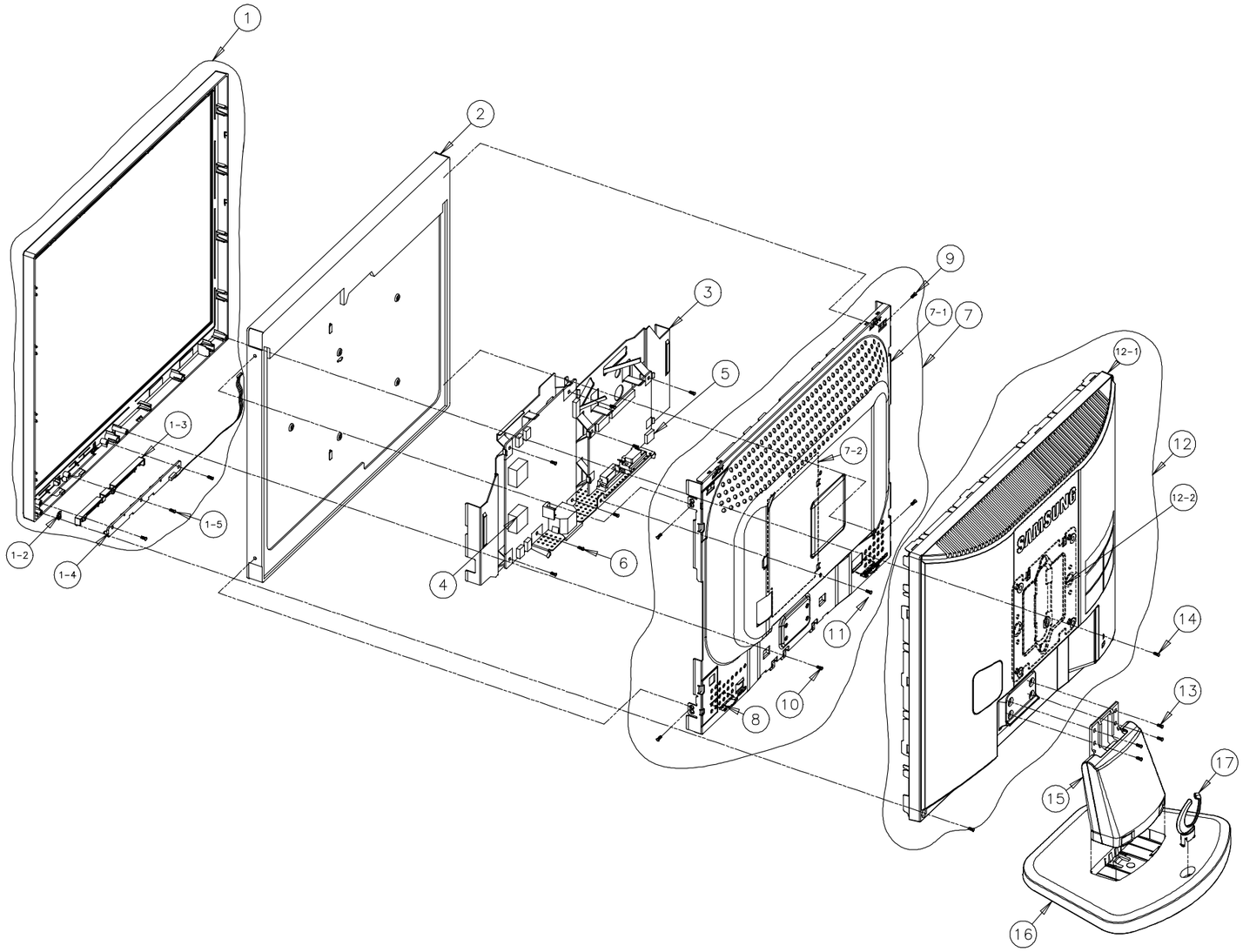
No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	REMARK
1	ASSY,COVER-FRONT	BN96-01052B	ABS HB,GR70,SILVER	1	SA
1-1	COVER-FRONT	BN63-01206A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00257A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A	-	1	SNA
1-5	SCREW TAPTITE	6003-000282	BH,+,B,M3,L8,ZPC(BLK),SWRC	3	SA
2	PANEL	BN07-00164B	LTM150XO-L01	1	SA
3	BRKT-PCB	BN61-01068A	SECC T1.0, ANALOG TYPE	1	SNA
4	IP-BOARD	BN44-00107B	-	1	SA
5	MAIN-BOARD	BN94-00527D	-	1	SA
6	SCREW TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	7	SA
7	ASSY,SHIELD-COVER	BN96-01058A	-	1	SNA
7-1	SHIELD-COVER	BN63-01192A	SECC T1.0	1	SNA
7-2	COVER-INSULATOR	BN63-01213A	PC SHEET V2,T0.35	1	SNA
8	SCREW-MACHINE	6001-000125	BH,+,M3,L4,ZPC(YEL),SM20C,	4	SA
9	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
10	ASSY,COVER-REAR	BN96-01053B	ABS HB,BK07	1	SA
10-1	COVER-REAR	BN63-01207B	ABS HB,BK07	1	SNA
10-2	BRKT-VESA	BN61-00379A	GOYA 153S,SECC,T2.0	1	SNA
11	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
12	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
13	ASSY,STAND	BN96-01063A	ABS HB,BK07	1	SA
14	STAND-BASE	BN61-00824A	ABS HB,BK07	1	SNA
15	STAND-HOLDER	BN61-00821A	ABS HB,BK07	1	SNA

6-2 MJ15BS*



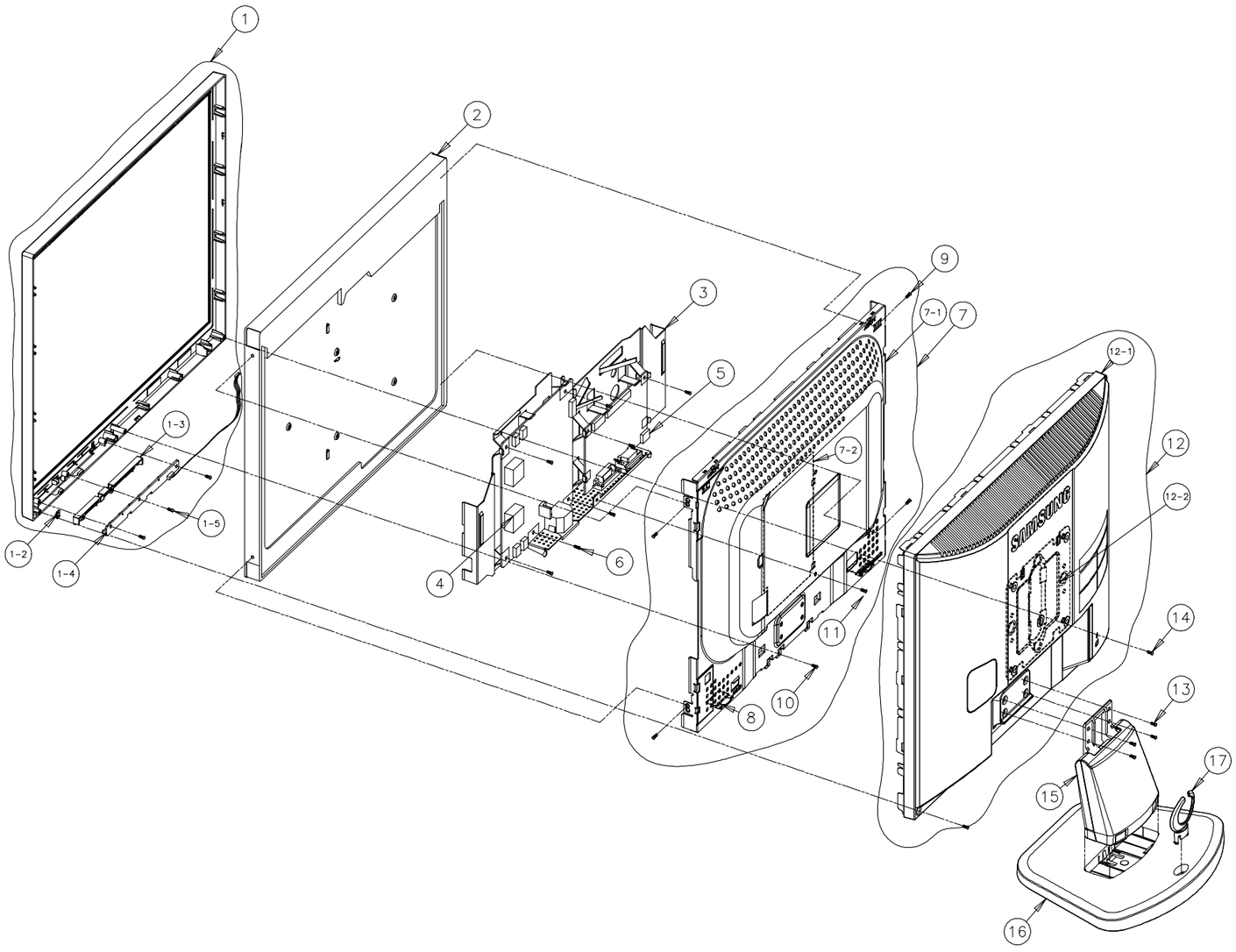
No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	REMARK
1	ASSY,COVER-FRONT	BN96-01052A	ABS HB,GR70,SILVER	1	SA
1-1	COVER-FRONT	BN63-01206A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00257A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A	-	1	SNA
1-5	SCREW TAPTITE	6003-000282	BH,+,B,M3,L8,ZPC(BLK),SWRC	3	SA
2	PANEL	BN07-00164B	LTM150XO-L01	1	SA
3	BRKT-PCB	BN61-01068B	SECC T1.0, DUAL TYPE	1	SNA
4	IP-BOARD	BN44-00107B	-	1	SA
5	MAIN-BOARD	BN94-00527D	-	1	SA
6	SCREW TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	7	SA
7	ASSY,SHIELD-COVER	BN96-01058A	-	1	SNA
7-1	SHIELD-COVER	BN63-01192A	SECC T1.0	1	SNA
7-2	COVER-INSULATOR	BN63-01213A	PC SHEET V2,T0.35	1	SNA
8	SCREW-MACHINE	6001-000125	BH,+,M3,L4,ZPC(YEL),SM20C,	4	SA
9	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
10	ASSY,COVER-REAR	BN96-01053A	ABS HB,BK07	1	SA
10-1	COVER-REAR	BN63-01207A	ABS HB,BK07	1	SNA
10-2	BRKT-VESA	BN61-00379A	GOYA 153S,SECC,T2.0	1	SNA
11	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
12	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
13	ASSY,STAND	BN96-01063A	ABS HB,BK07	1	SA
14	STAND-BASE	BN61-00824A	ABS HB,BK07	1	SNA
15	STAND-HOLDER	BN61-00821A	ABS HB,BK07	1	SNA

6-3 MJ17AS*



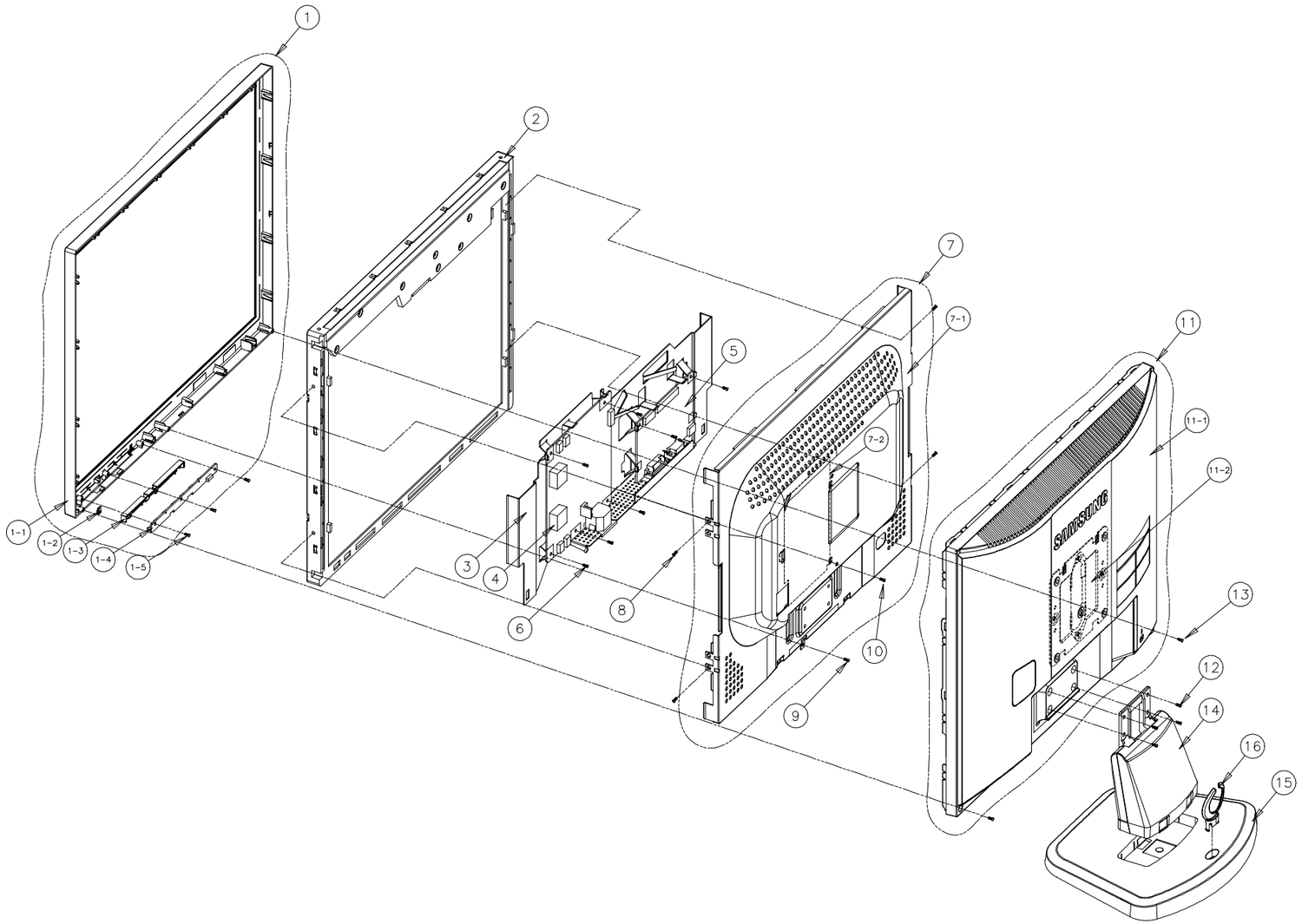
No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	REMARK
1	ASSY,COVER-FRONT	BN96-01056B	ABS HB,SILVER	1	SA
1-1	COVER-FRONT	BN63-01208A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00257A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A	-	1	SNA
1-5	SCREW TAPTITE	6003-000282	BH,+,B,M3,L8,ZPC(BLK),SWRC	3	SA
2	PANEL	BN07-00160B	[TAMRON-I-II,DOR,6B11,338.5x296.5x17.5,16.28,40,8.264x6.764,0°50,5K,TA	1	SA
3	BRKT-PCB	BN61-01102A	SECC T1.0	1	SNA
4	IP-BOARD	BN44-00113A	-	1	SA
5	MAIN-BOARD	BN94-00527C	-	1	SA
6	SCREW TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	7	SA
7	ASSY,SHIELD-COVER	BN96-01059A	-	1	SNA
7-1	SHIELD-COVER	BN63-01211A	SECC T1.0	1	SNA
7-2	COVER-INSULATOR	BN63-01313A	PC SHEET V2,T0.35,106*144	1	SNA
8	PANEL-SPACER	BN64-00258A	ABS,HB,BK07	2	SNA
9	SCREW-MACHINE	6001-000559	FH,+,M3,L6,ZPC(YEL)	4	SA
10	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
11	SCREW-TAPTITE	6003-000276	BH,+,B,M3,L10,ZPC(YEL),SWRC	1	SA
12	ASSY,COVER-REAR	BN96-01054B	ABS HB,BK07	1	SA
12-1	COVER-REAR	BN63-01216B	ABS HB,BK07	1	SNA
12-2	BRKT-VESA	BN61-00377A	GY17LS,SECC,T1.0,100*100	1	SNA
13	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
14	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
15	ASSY,STAND	BN96-01063A	ABS HB,BK07	1	SA
16	STAND-BASE	BN61-00824A	ABS HB,BK07	1	SNA
17	STAND-HOLDER	BN61-00821A	ABS HB,BK07	1	SNA

6-4 MJ17BS*



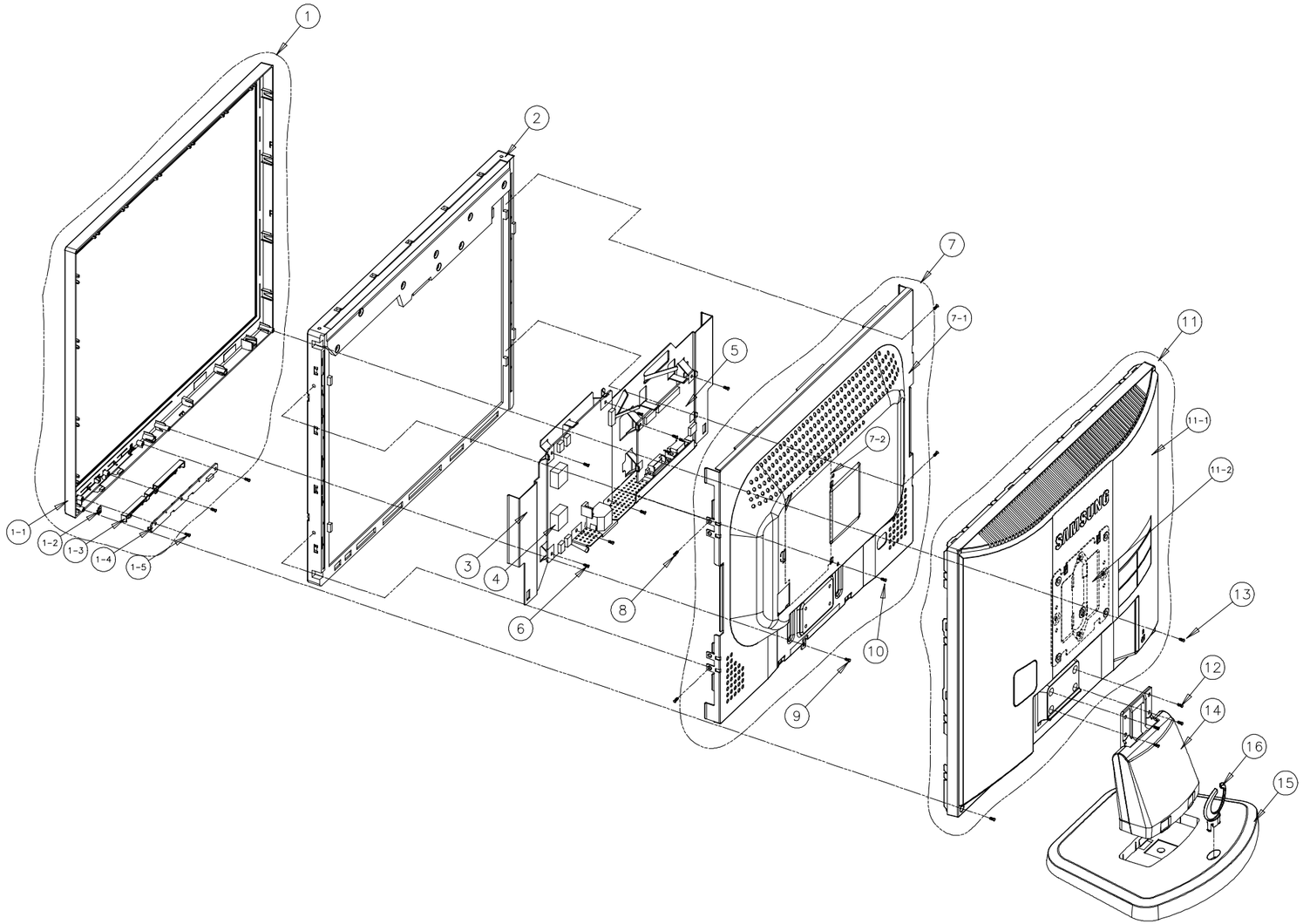
No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	REMARK
1	ASSY,COVER-FRONT	BN96-01056A	ABS HB,SILVER	1	SA
1-1	COVER-FRONT	BN63-01208A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00257A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A	-	1	SNA
1-5	SCREW TAPTITE	6003-000282	BH,+,B,M3,L8,ZPC(BLK),SWRC	3	SA
2	PANEL	BN07-00160B	L1017.1023-111.0220,1011.358.5+296.5+17.5,16.28,40.0,28+40.284.0*50.5+1.78	1	SA
3	BRKT-PCB	BN61-01102B	SECC T1.0,DUAL TYPE	1	SNA
4	IP-BOARD	BN44-00113A	-	1	SA
5	MAIN-BOARD	BN94-00527C	-	1	SA
6	SCREW TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	7	SA
7	ASSY,SHIELD-COVER	BN96-01059A	-	1	SNA
7-1	SHIELD-COVER	BN63-01211A	SECC T1.0	1	SNA
7-2	COVER-INSULATOR	BN63-01313A	PC SHEET V2,T0.35,106*144	1	SNA
8	PANEL-SPACER	BN64-00258A	ABS,HB,BK07	2	SNA
9	SCREW-MACHINE	6001-000559	FH,+,M3,L6,ZPC(YEL)	4	SA
10	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
11	SCREW-TAPTITE	6003-000276	BH,+,B,M3,L10,ZPC(YEL),SWRC	1	SA
12	ASSY,COVER-REAR	BN96-01054A	ABS HB,BK07	1	SA
12-1	COVER-REAR	BN63-01216A	ABS HB,BK07	1	SNA
12-2	BRKT-VESA	BN61-00377A	GY17LS,SECC,T1.0,100*100	1	SNA
13	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
14	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
15	ASSY,STAND	BN96-01063A	ABS HB,BK07	1	SA
16	STAND-BASE	BN61-00824A	ABS HB,BK07	1	SNA
17	STAND-HOLDER	BN61-00821A	ABS HB,BK07	1	SNA

6-5 MJ19AS*



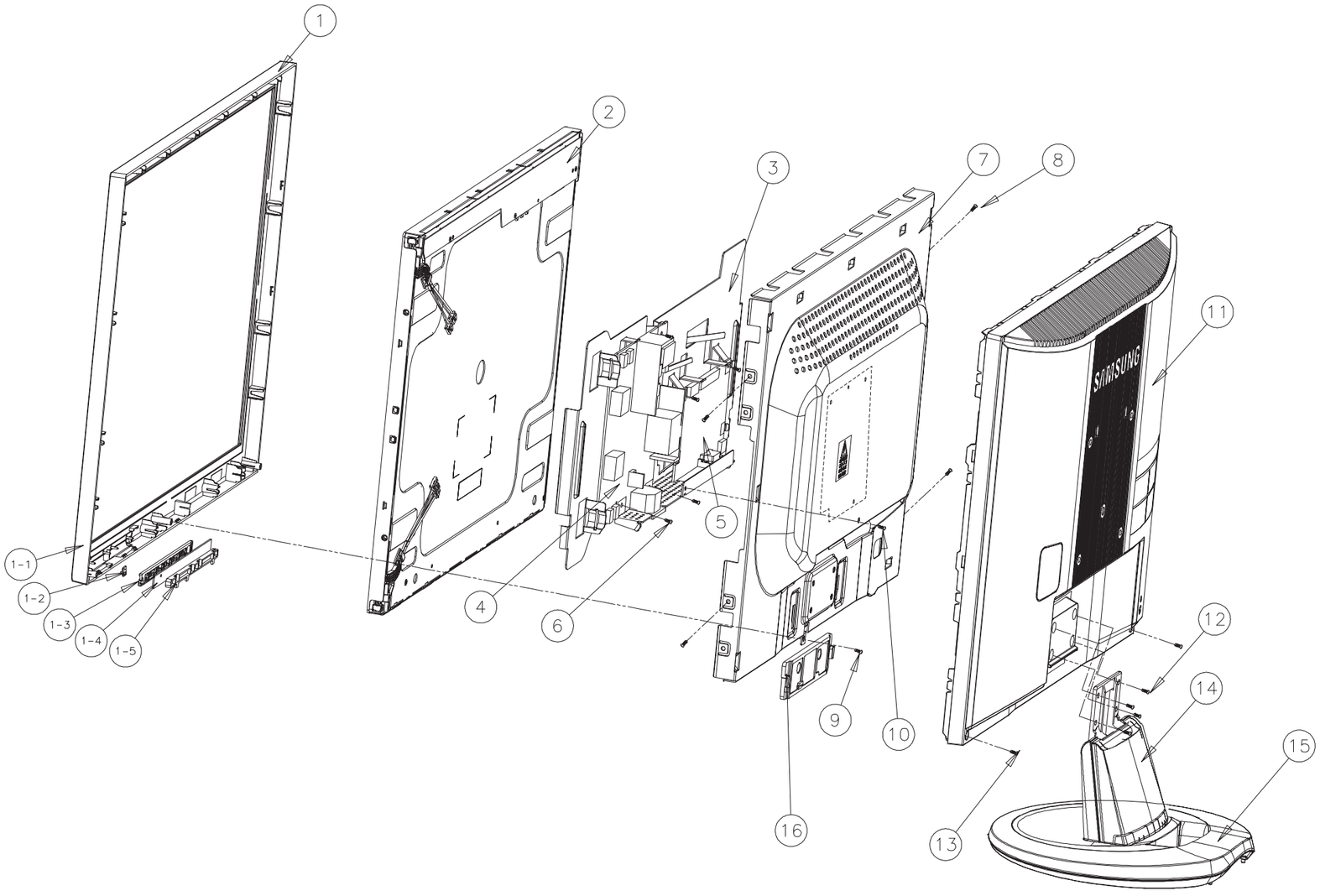
No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	REMARK
1	ASSY,COVER-FRONT	BN96-01057B	ABS HB,SILVER	1	SA
1-1	COVER-FRONT	BN63-01214A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00257A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A	-	1	SNA
1-5	SCREW TAPTITE	6003-000282	BH,+,B,M3,L8,ZPC(BLK),SWRC	3	SA
2	PANEL	BN07-00151B	LMTHKE1+01,0202,6817,404,3+330+20,16.2K,40.2,2644.2SH,8*50,5H,PVH	1	SA
3	BRKT-PCB	BN61-01103A	SECC T1.0	1	SNA
4	IP-BOARD	BN44-00113A	-	1	SA
5	MAIN-BOARD	BN94-00516T	-	1	SA
6	SCREW TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	7	SA
7	ASSY,SHIELD-COVER	BN96-01060A	-	1	SNA
7-1	SHIELD-COVER	BN63-01217A	SECC T1.0	1	SNA
7-2	COVER-INSULATOR	BN63-01313A	PC SHEET V2,T0.35,106*144	1	SNA
8	SCREW-MACHINE	6001-000131	BH,+,M3,L6,ZPC(YEL),SM20C,	4	SA
9	SCREW-TAPTITE	6003-000276	BH,+,B,M3,L10,ZPC(YEL)	1	SA
10	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
11	ASSY,COVER-REAR	BN96-01055B	ABS HB,BK07	1	SA
11-1	COVER-REAR	BN63-01215B	ABS HB,BK07	1	SNA
11-2	BRKT-VESA	BN61-00377A	GY17LS,SECC,T1.0,100*100	1	SNA
12	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
13	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
14	ASSY,STAND	BN96-01064A	ABS HB,BK07	1	SA
15	STAND-BASE	BN61-01060A	ABS HB,BK07	1	SNA
16	STAND-HOLDER	BN61-00821A	ABS HB,BK07	1	SNA

6-6 MJ19BS*



No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	REMARK
1	ASSY,COVER-FRONT	BN96-01057A	ABS HB,SILVER	1	SA
1-1	COVER-FRONT	BN63-01214A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00257A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A	-	1	SNA
1-5	SCREW TAPTITE	6003-000282	BH,+,B,M3,L8,ZPC(BLK),SWRC	3	SA
2	PANEL	BN07-00151B	LBN19X1-L03,D30,X01,4.0M,3x30x10,16.2M,40,0.29M+0.29M,0°50,59°,PM	1	SA
3	BRKT-PCB	BN61-01103B	SECC T1.0,DUAL TYPE	1	SNA
4	IP-BOARD	BN44-00113A	-	1	SA
5	MAIN-BOARD	BN94-00516T	-	1	SA
6	SCREW TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	7	SA
7	ASSY,SHIELD-COVER	BN96-01060A	-	1	SNA
7-1	SHIELD-COVER	BN63-01217A	SECC T1.0	1	SNA
7-2	COVER-INSULATOR	BN63-01313A	PC SHEET V2,T0.35,106*144	1	SNA
8	SCREW-MACHINE	6001-000131	BH,+,M3,L6,ZPC(YEL),SM20C,	4	SA
9	SCREW-TAPTITE	6003-000276	BH,+,B,M3,L10,ZPC(YEL)	1	SA
10	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
11	ASSY,COVER-REAR	BN96-01055A	ABS HB,BK07	1	SA
11-1	COVER-REAR	BN63-01215A	ABS HB,BK07	1	SNA
11-2	BRKT-VESA	BN61-00377A	GY17LS,SECC,T1.0,100*100	1	SNA
12	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
13	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
14	ASSY,STAND	BN96-01064A	ABS HB,BK07	1	SA
15	STAND-BASE	BN61-01060A	ABS HB,BK07	1	SNA
16	STAND-HOLDER	BN61-00821A	ABS HB,BK07	1	SNA

6-7 MJ19ES*/MJ19US*/MJ19QS*



No.	DESCRIPTION	CODE No.	SPECIFICATION	Q'ty	Remark
1	ASSY,COVER-FRONT	BN96-01669A	ABS HB,SILVER	1	SA
1-1	COVER-FRONT	BN63-01622A	ABS HB GR70 SILVER	1	SNA
1-2	LENS-LED	BN67-00120A	ACRYL,CLEAR	1	SNA
1-3	KNOB-FUNCTION	BN64-00288A	ABS+PC,GR70 SILVER	1	SNA
1-4	FUNCTION-PCB	BN96-01111A		1	SA
1-5	HODER PCB	BN61-01234A	ABS HB BK07	1	SNA
2	PANEL	BN07-00191A	LTM190EX-L01	1	SA
3	BRKT-PCB	BN61-01209A	SECC T1.0	1	SNA
4	IP-BOARD	BN44-00106C		1	SA
5	MAIN-BOARD	BN94-00516T		1	SA
6	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	5	SA
7	ASSY,SHIELD-COVER	BN96-01670A	SECC T1.0	1	SNA
8	SCREW-MACHINE	6001-000131	BH,+,M3,L6,ZPC(YEL),SM20C,	4	SA
9	SCREW-TAPTITE	6003-000276	BH,+,B,M3,L10,ZPC(YEL)	1	SA
10	SCREW-TAPTITE	6003-000117	BH,+,B,M3,L6,ZPC(YEL),SWRC	1	SA
11	ASSY,COVER-REAR	BN96-01055B	ABS HB,BK07	1	SA
12	SCREW-TAPTITE	6003-000337	BH,+,S,M4,L10,ZPC(BLK),SWRCH18	4	SA
13	SCREW-TAPTITE	6003-001086	BH,+,B,M3,L12,ZPC(BLK),SWRCH18	2	SA
14	ASS'Y STAND BODY	BN96-01064A	ABS HB,BK07	1	SA
15	ASS'Y STAND-BASE	BN61-01462A	ABS HB	1	SA
16	SUPPORT-PANEL-EX	BN61-01468A	ABS HB,BK07	1	SNA

7 Electrical Parts List

-You can search for updated part codes through ITSELF web site.
URL : http://itself.sec.samsung.co.kr/

7-1 LS19MJAKSZ/EDC Parts list

Level	Loc. No.	Code No.	Description & Specification	EA	SA/SNA
0		LS19MJAKSZ/EDC	920N,SGM2/S19A6-LMJ,19,LCD-MO,NETHERLAND		
0.1	M0216	BN90-00486H	ASSY STAND;MJ19BS/AS	1	S.N.A
..2	M0216	BN96-01064A	ASSY STAND P-SIMPLE;MJ19AS/BS,ABS HB,BK0	1	S.A
...3	M0081	6003-000269	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(YEL),SW	4	S.N.A
...3	M0081	6003-001086	SCREW-TAPTITE;BH,+,B,M3,L12,ZPC(BLK),SWR	6	S.A
...3	T0063	BN61-01061A	STAND-FRONT;GS19VS,ABS HB,BK07	1	S.N.A
...3	T0081	BN61-01062A	STAND-REAR;GS19VS,ABS HB,BK07	1	S.N.A
...3	STD	BN61-01067A	STAND-BRKT HINGE;GS19VS,SECC,T1.6,NAT	1	S.N.A
...3	M0122	BN96-01062A	ASSY MISC P-HINGE;MJ19AS/BS,ZNDC2	1	S.N.A
0.1	M0002	BN90-00641D	ASSY COVER REAR;MJ19AS	1	S.N.A
..2	M0081	6003-000337	SCREW-TAPTITE;BH,+,S,M4,L10,ZPC(BLK),SWR	4	S.A
..2	M0013	BN96-01055B	ASSY COVER P-REAR;MJ19AS,ABS HB,BK07	1	S.A
...3	M0113	BN61-00377A	BRACKET-VESA;GOYA19"(193V),SECC,T1.0	1	S.A
...3	M0006	BN63-01215B	COVER-REAR;MJ19AS,ABS HB,BK07,NONE,1.5	1	S.N.A
0.1	M0001	BN90-00835K	ASSY COVER FRONT;LS19MJAKSZ/EDC	1	S.N.A
..2	M0081	6003-001086	SCREW-TAPTITE;BH,+,B,M3,L12,ZPC(BLK),SWR	2	S.A
..2	T0003	BN96-01057X	ASSY COVER P-FRONT;MJ19AS (S/M920N),HSD	1	S.A
...3	T0245	BN61-01243A	HOLDER-PCB;MJ17,ABS HB,BK07	1	S.N.A
...3	M0112	BN63-01214A	COVER-FRONT;MJ19A/BS,ABS,HB,GR70	1	S.N.A
...3	M0007	BN64-00288A	KNOB-FUNCTION;MJ17,ABS,PC,GR70,SPRAY	1	S.N.A
...3	M0105	BN67-00120A	LENS-LED;MATISSE,ACRYL,CLEAR	1	S.N.A
...3	M0145	BN96-01111A	ASSY BOARD P-FUNCTION;MATISSE,FUNCTION	1	S.A
..2	T0382	BP61-00495C	HOLDER-CARE;PJT,ACRYL-FOAM,T0.25,W30.0mm	0.16	S.N.A
0.1		BN91-00939Q	ASSY LCD-NTZ;MJ19AS	1	S.N.A
..2	M0215	BN07-00256A	LCD-PANEL;HSD190ME12-A10,Matisse,6bit FR	1	S.A
0.1		BN91-01001J	ASSY SHIELD-NTZ;MJ19AS*	1	S.N.A
..2	CCM1	6001-000364	SCREW-MACHINE;FH,+,M3,L8,ZPC(YEL),SWRCH1	4	S.N.A
..2	M0081	6003-000117	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(YEL),SWRC	1	S.A
..2	M0081	6003-000276	SCREW-TAPTITE;BH,+,-,B,M3,L10,ZPC(YEL),S	1	S.N.A
..2	M0114	BN39-00244A	CBF SIGNAL;BU15AO(T541A),15P/15P,20276-N	1	S.A
..2	M2893	BN39-00513A	LEAD CONNECTOR;MJ17AS(BS),UL1571#30,UL/C	1	S.A
..2	M2893	BN39-00523C	LEAD CONNECTOR;MJ17/19*,UL1061#28,UL/CSA	1	S.A
..2	T0081	BN61-01234A	HOLDER-INVERTER;MATISSE,ABS V0,BK07	2	S.N.A
..2	T0376	BN96-01060F	ASSY MISC P-SHIELD COVER;MJ19AS	1	S.N.A
0.1	M0017	BN91-01015A	ASSY CHASSIS-NTZ,W/W;MJ19AS*,HANNSTAR,W/	1	S.A
..2	M0174	BN44-00089B	IP BOARD;IP-35135A (D),MJ17*,3.2~4.8mA,6	1	S.A
..2	M0107	BN61-01103D	BRACKET-PCB;GS19ES/ET,SECC,T1.0	1	S.N.A
..2	M0014	BN94-00828H	ASSY PCB MAIN-NTZ,W/W;MJ19AS,W/W	1	S.N.A
...3	T0245	0202-001522	SOLDER-WIRE FLUX;LFA3-107,-,D1.2,96.5Sn/	1	S.N.A
...3	CN101	3701-001219	CONNECTOR-DSUB;15P,3R,FEMALE,ANGLE,AUF	1	S.A
...3	CN600	3711-004712	HEADER-BOARD TO CABLE;BOX,9P,1R,2mm,STRA	1	S.A
...3	M0081	6003-000117	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(YEL),SWRC	5	S.A
...3	M0081	6003-000117	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(YEL),SWRC	2	S.A
...3	T0174	BN97-00797F	ASSY SMD;MJ19AS	1	S.N.A
....4	D101	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
....4	D102	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
....4	D104	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
....4	ZD100	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD101	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD103	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD104	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD105	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD109	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD110	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A

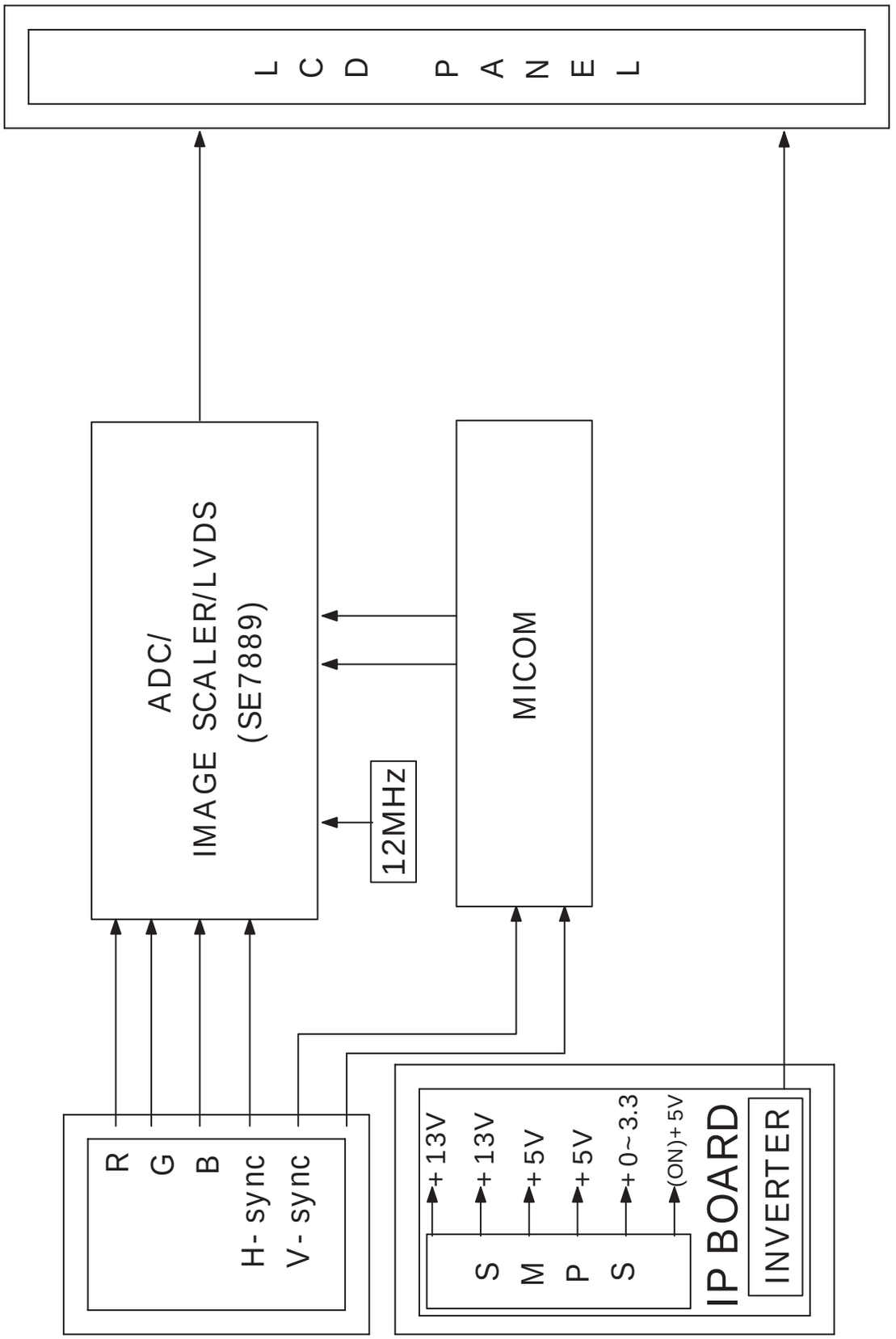
Level	Loc. No.	Code No.	Description & Specification	EA	SA/SNA
....4	ZD112	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD201	0403-001411	DIODE-ZENER;-,5.49-5.73V,200MW,SOD-323,T	1	S.A
....4	ZD106	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A
....4	ZD200	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A
....4	Q603	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	S.A
....4	Q604	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	S.A
....4	Q409	0505-001957	FET-SILICON;NTR2101P,P,-8V,-3.7A,0.052oh	1	S.A
....4	IC109	1003-001813	IC-LCD CONTROLLER;SE16AWL,PQFP,100P,20x1	1	S.A
....4	IC112	1103-001023	IC-EEPROM;24C08,1Kx8,SOP,8P,5x4mm,2.5/5.	1	S.A
....4	T0087	1203-002425	IC-POSI.FIXED REG.;AP1117,SOT-223,3P,138	1	S.A
....4	T0087	1203-002844	IC-POSI.FIXED REG.;AP1117D-18A,TO-252-3L	1	S.A
....4	R100	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R101	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R102	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R103	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R104	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R105	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R245	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R270	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R107	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R108	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R109	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R111	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R112	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R226	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R227	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R228	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R229	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R231	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R233	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R239	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R240	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R242	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R243	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R244	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R247	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R248	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R249	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R250	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R251	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R253	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R254	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R255	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R610	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R234	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608	1	S.A
....4	R124	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
....4	R225	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
....4	R257	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A
....4	R130	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R201	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R202	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R205	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R208	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R209	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R210	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R212	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R213	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R214	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R215	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R216	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R217	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R218	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R219	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R220	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R230	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R605	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A

Level	Loc. No.	Code No.	Description & Specification	EA	SA/SNA
....4	R131	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R236	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R252	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R400	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R401	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R602	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R603	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R604	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R606	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R607	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R106	2007-000821	R-CHIP;390ohm,1%,1/10W,TP,1608	1	S.A
....4	R403	2007-000821	R-CHIP;390ohm,1%,1/10W,TP,1608	1	S.A
....4	R113	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R114	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R115	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R126	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R127	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R608	2007-002899	R-CHIP;10ohm,1%,1/10W,TP,1608	1	S.A
....4	R609	2007-002899	R-CHIP;10ohm,1%,1/10W,TP,1608	1	S.A
....4	C416	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608	1	S.A
....4	C418	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608	1	S.A
....4	C210	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
....4	C109	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A
....4	C106	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C208	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C209	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C204	2203-000426	C-CER,CHIP;0.018nF,5%,50V,C0G,1608	1	S.A
....4	C111	2203-000998	C-CER,CHIP;0.047nF,5%,50V,C0G,1608	1	S.A
....4	C100	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C101	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C102	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C103	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C104	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C105	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C107	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C130	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C200	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C207	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C211	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C400	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C402	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C403	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C404	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C405	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C406	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C407	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C408	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C409	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C410	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C411	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C412	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C413	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C414	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C415	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C417	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C419	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C421	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C423	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C424	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C605	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C607	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C610	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C611	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C615	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C618	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C619	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C620	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A

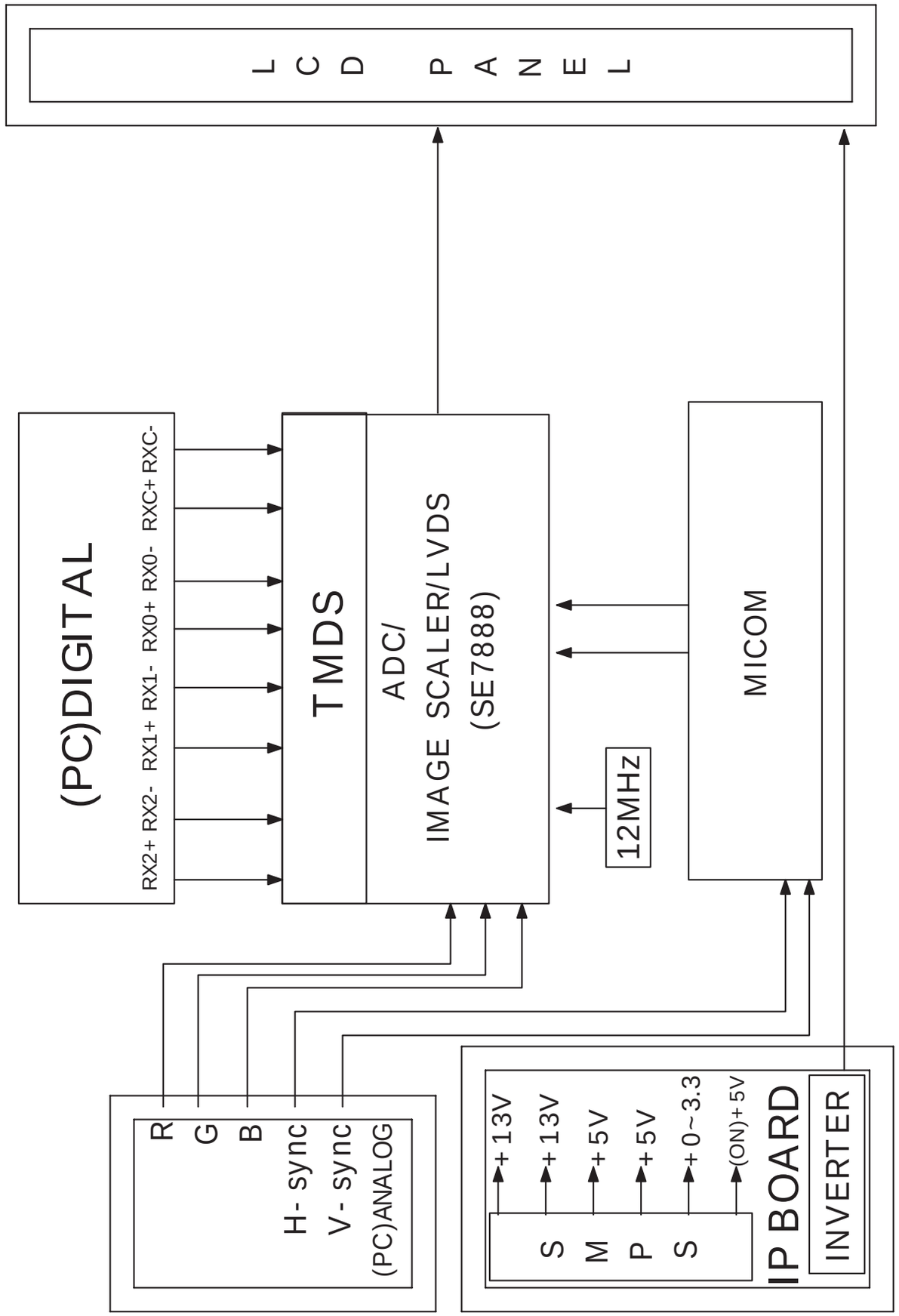
Level	Loc. No.	Code No.	Description & Specification	EA	SA/SNA
....4	C420	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C604	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C606	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C614	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C201	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C202	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C205	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C422	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C401	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	S.A
....4	C608	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	S.A
....4	C609	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	S.A
....4	C612	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	S.A
....4	C630	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	S.A
....4	T0052	2703-001334	INDUCTOR-SMD;1.5uH,10%,2012	1	S.A
....4	T0052	2703-001334	INDUCTOR-SMD;1.5uH,10%,2012	1	S.A
....4	X400	2801-003326	CRYSTAL-SMD;24MHZ,30PPM,28-ABX,20PF,50OH	1	S.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	CN400	3711-005470	HEADER-BOARD TO CABLE;BOX,30P,1R,1.25mm,	1	S.A
....4	CN200	3711-005543	HEADER-BOARD TO CABLE;BOX,6P,1R,1.25mm,S	1	S.A
....4	MICOM	BN97-00798F	ASSY MICOM-NTZ,W/W;MJ19AS	1	S.A
.....5	IC520	0903-001397	IC-MICROCONTROLLER;WT61P4,8Bit,PLCC,44P,	1	S.N.A
....4	CIS5	0202-001477	SOLDER-CREAM;LST309-M,-,D20~45§-,96.5Sn/	1	S.N.A
....4	R410	2007-000109	R-CHIP;1Mohm,5%,1/10W,TP,1608	1	S.A
....4	T0077	BN41-00652C	PCB MAIN;MATISSE2/GOYA2,STH,2L,MP1.2,1.6	1	S.N.A
0.1	M0019	BN92-00329Y	ASSY LABEL;MJ/GS,W/W	1	S.N.A
0.1	M0113	BN92-01136F	ASSY P/MATERIAL;MJ19ASK*/*,NEW SIMPLE	1	S.N.A
..2	T0376	6902-000379	BAG AIR;LDPE,T0.2,W1000,L1800,TRP,-,--	0.004	S.N.A
..2	T0524	6902-000520	BAG PE;HDPE/NITRON(DOUBLE),T0.015/T0.5(D	1	S.N.A
..2	P/M	6902-000604	BAG WRAPPING;LDPE,T0.02,W500,L10000,TRP,	3	S.N.A
..2	M0081	6902-000609	BAG ROLL;LDPE,T0.05,W2400,L1000,TRP,-,-	0.1	S.N.A
0.1	M0003	BN92-01640X	ASSY BOX;LS19MJAKSZ/EDC	1	S.N.A
..2	M0120	BH75-10529A	UNIT-HANDLE PACKING;LXA410TLMU,PE,-,WHIT	1	S.N.A
...3	M0103	BN72-60001A	LEVER-TOP;LSD210TL,PE-LD,WHITE,TFT_LCD	1	S.N.A
...3	M0102	BN72-60002A	LEVER-BOTTOM;LSD210TL,PE-LD,WHITE,TFT-LC	1	S.N.A
..2	BOX	BN69-00756S	BOX-00;S/M920N(MJ19AS),SY-01,A-1,W497*D4	1.02	S.N.A
0.1	M0045	BN92-01645N	ASSY ACCESSORY;LS19MJAKSZ/EDC	1	S.N.A
..2	M0013	BN96-01462A	ASSY STAND P-BASE;MATISSE19",ABS HB,SILV	1	S.A
...3	M0081	6003-000142	SCREW-TAPTITE;FH,+,B,M3,L8,ZPC(BLK),SWRC	10	S.N.A
...3	T0524	6902-000389	BAG PE;HDPE/NITRON/HDPE,T0.015/T0.5/T0.0	1	S.N.A
...3	STAND/BASE	BN61-01384A	BRACKET-STAND BOTTOM;MJ19,SECC,T1.6	1	S.N.A
...3	CIS4	BN61-01435A	HOLDER-STAND;CH,+,M4,L10(4),ZPC(WHT),SWR	1	S.N.A
...3	M0111	BN63-01491A	COVER-STAND;MJ19,ABS HB,BK07	1	S.N.A
...3	T0004	BN63-01492A	COVER-STAND BASE;MJ19,ABS HB,BK07	1	S.N.A
...3	T0059	BN68-00473W	MANUAL FLYER-CARD;Goya2 Stand Guide,Sync	1	S.N.A
...3	M0126	BN73-00077A	RUBBER-FOOT;MATISSE,BUMPON,¨ª13.5,T2.0,6	4	S.N.A
..2	M0045	BN96-02896S	ASSY ACCESSORY;LS19MJAKSZ/EDC	1	S.A
...3	T0268	3903-000042	CBF-POWER CORD;DT,EU,FP3/YES,IEC320 C13/	1	S.A
...3	T0524	6902-000110	BAG PE;LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A
...3	ACCESSORY	BH68-70438A	CARD-12,BLOC WARRANTY;TFT LCD,BASIC,EU,M	1	S.N.A
...3	ACCESSORY	BH68-70448A	CARD-01;TFT LCD,SRC,RUSSIA,S/W,120,W210*	1	S.N.A
...3	T0059	BN68-00907A	MANUAL FLYER-CARD;COMM,SAMSUNG,18 LANG,E	1	S.N.A
...3	M0215	BN96-02987A	ASSY MANUAL P-IB+QSG;911N,SyncMaster,W/W	1	S.N.A
....4	QSG	BH68-00376L	MANUAL FLYER-04,QSG;LCDQUICK SETUP GUIDE	1	S.N.A
....4	IB	BN59-00501A	S/W DRIVER-00,IB;COMM,W/W,SYNCMASTER,MAT	1	S.N.A

8 Block Diagram

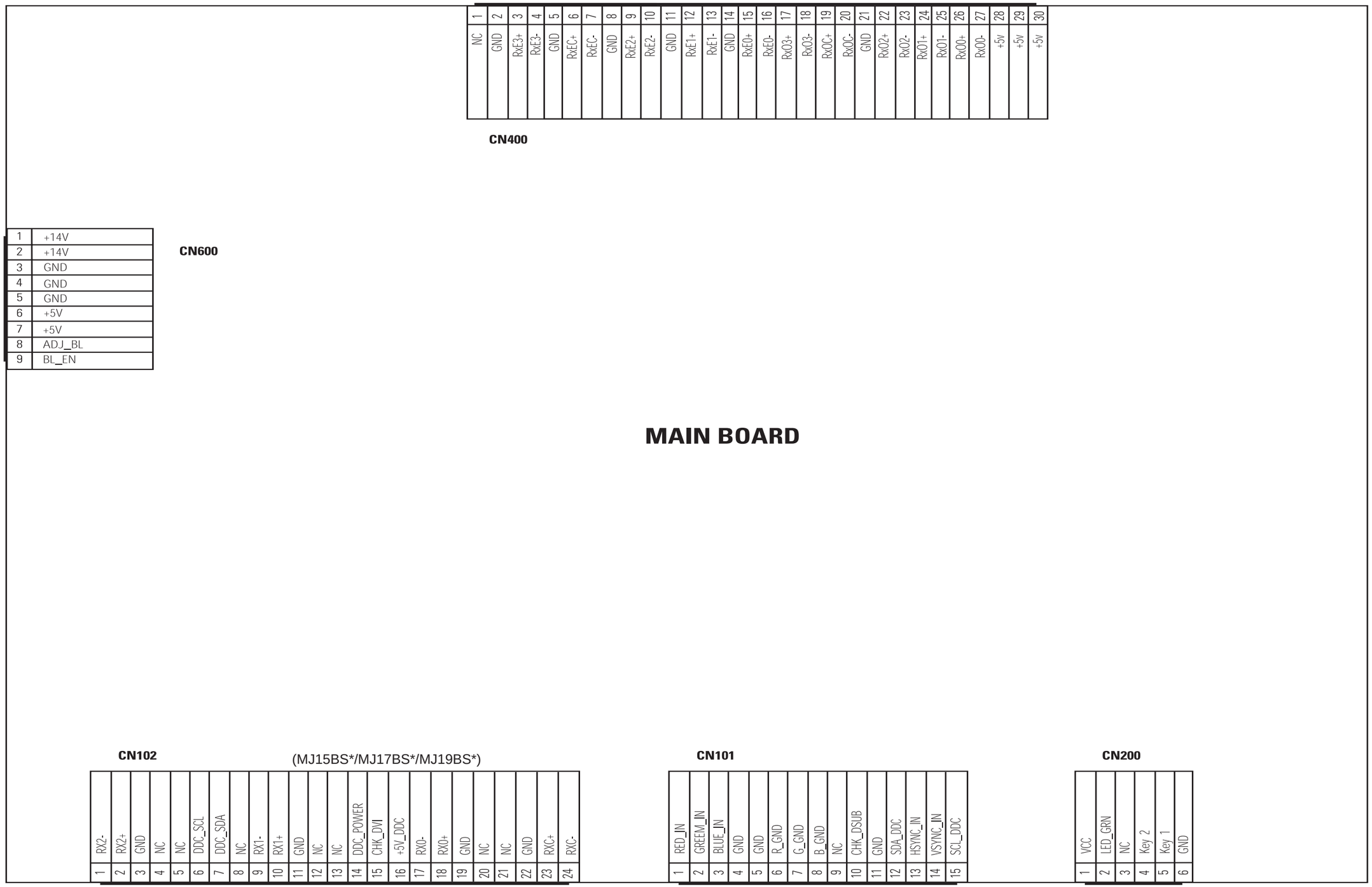
8-1 MJ15AS*/MJ17AS*/MJ19AS*/MJ19ES*/MJ19US* ANALOG Block Diagram



8-2 MJ15BS*/MJ17BS*/MJ19BS*/MJ19QS* DIGITAL Block Diagram

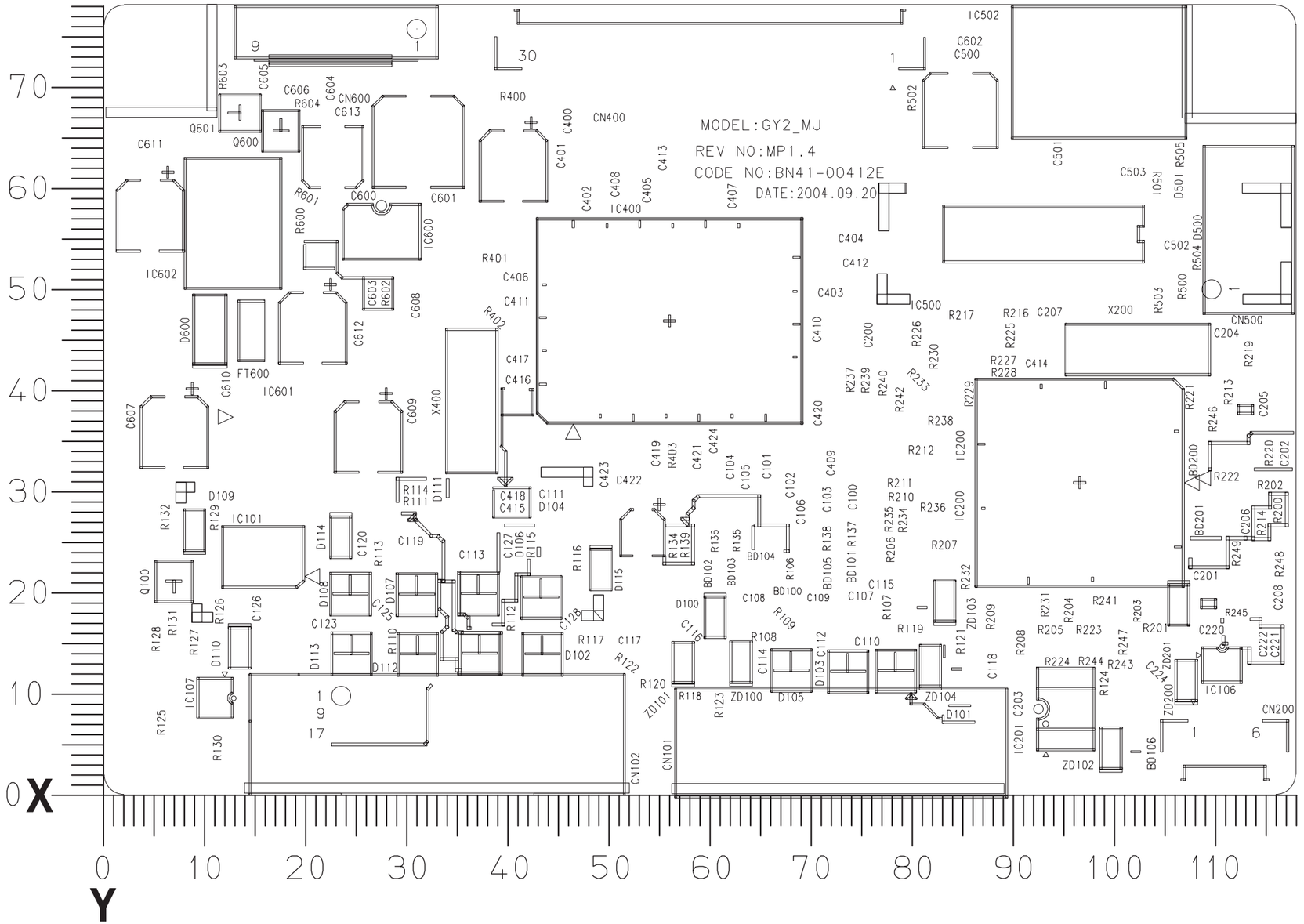


9 Wiring Diagram



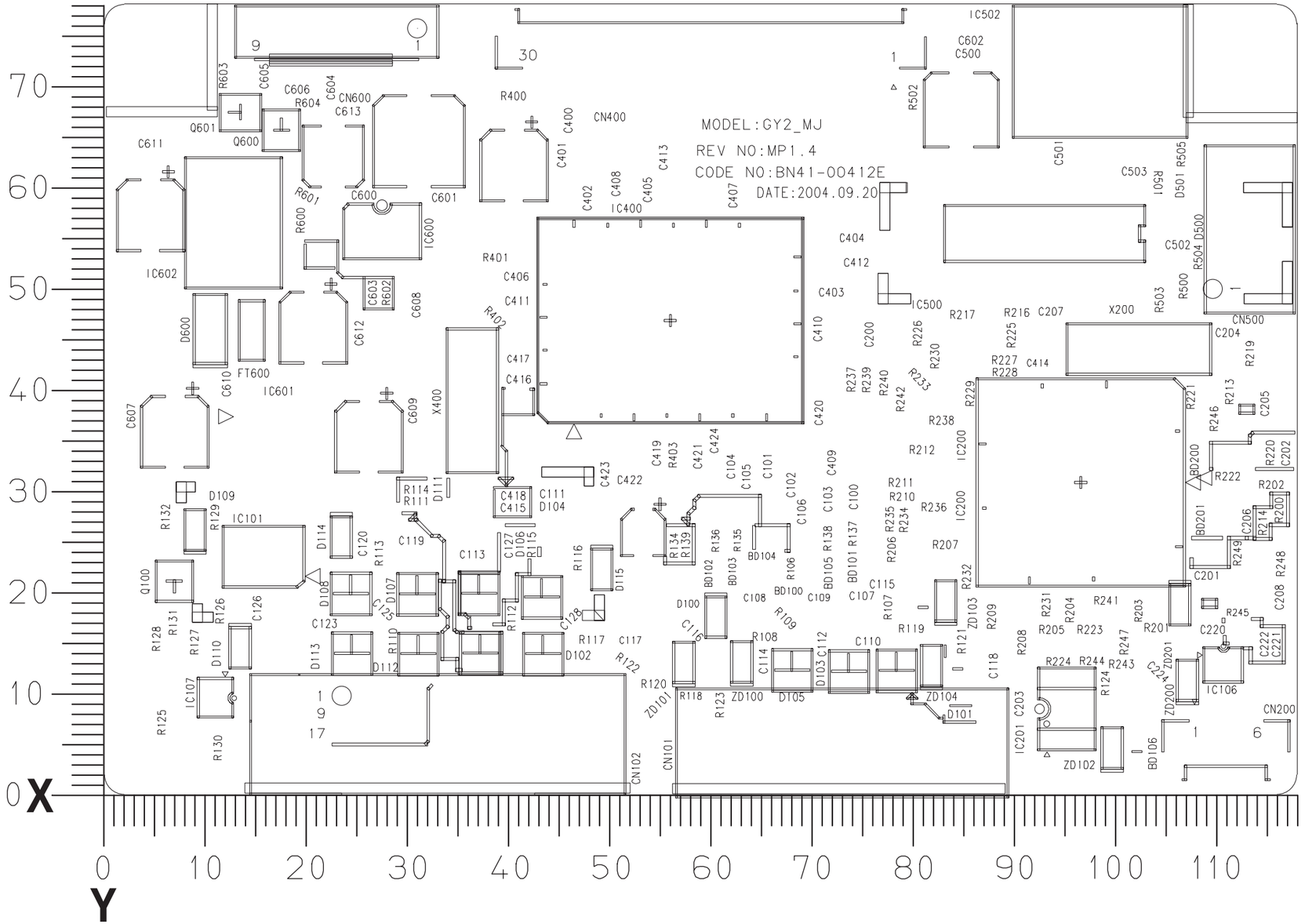
10 PCB Layout

10-1 MJ15AS* ANALOG PCB



Loc. No.	Description	X	Y
DIODE			
D100	DIODE-ZENER	60.5	16.0
D101	DIODE-SWITCHING	78.3	12.3
D103	DIODE-SWITCHING	73.6	12.2
D105	DIODE-SWITCHING	68.0	12.4
D600	DIODE-RECTIFIER	10.5	46.1
ZD200	DIODE-ZENER	107.1	11.3
ZD600	DIODE-ZENER	17.1	69.6
IC			
IC105	DIODE-TVS	55.0	14.0
IC106	DIODE-TVS	110.7	12.9
IC200	IC-MICROCONTROLLER	96.6	30.9
IC201	IC-EEPROM	95.2	8.5
IC400	IC-LCD CONTROLLER	56.0	46.9
IC600	FET-SILICON	27.5	55.8
IC601	IC-DUAL VOLTAGE REGULATOR	17.4	35.5
IC602	IC-VOLTAGE REGULATOR	12.8	56.1

10-2 MJ15BS* DIGITAL PCB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CODE NO:BN41-00412E
DATE:2004.09.20
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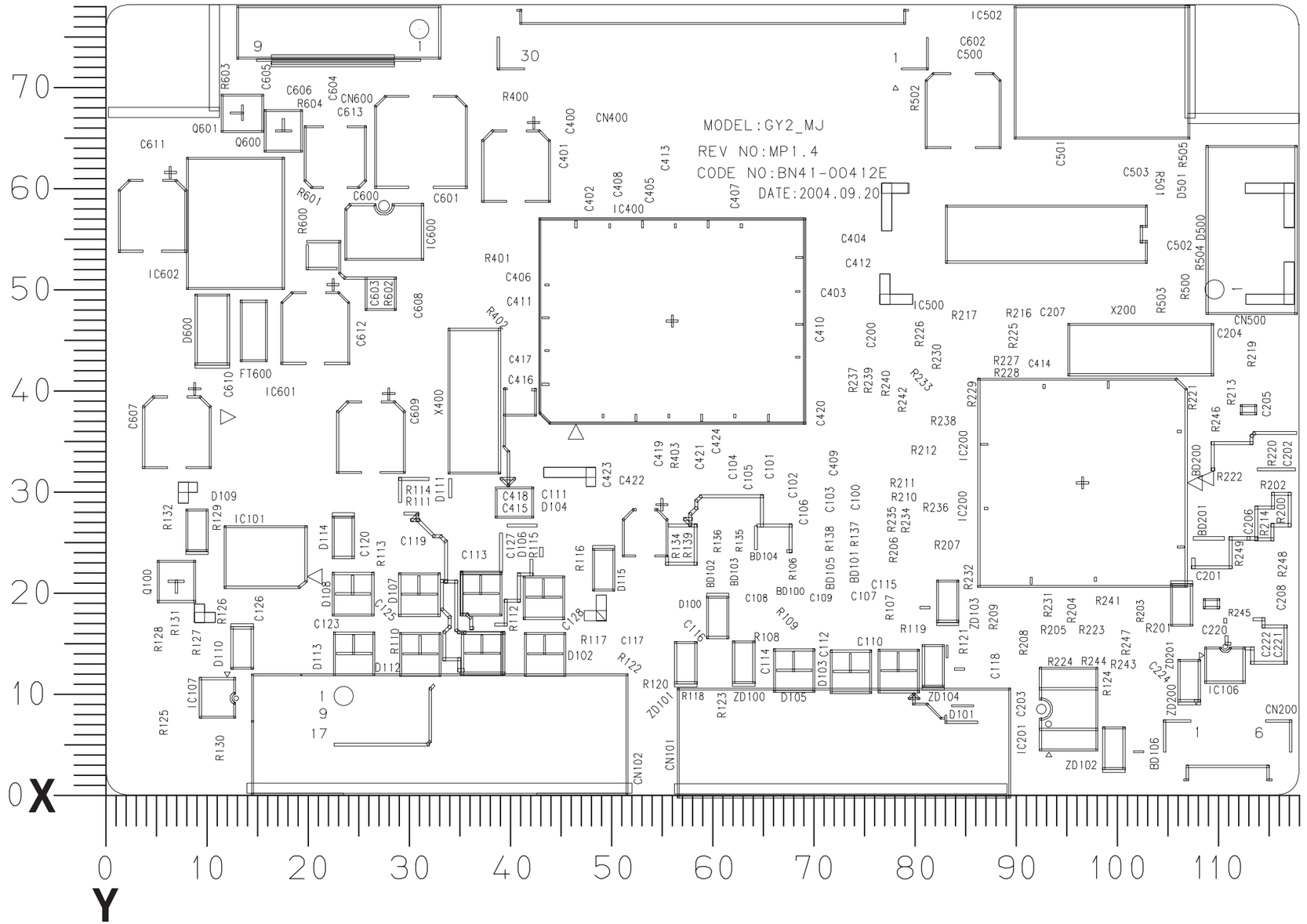
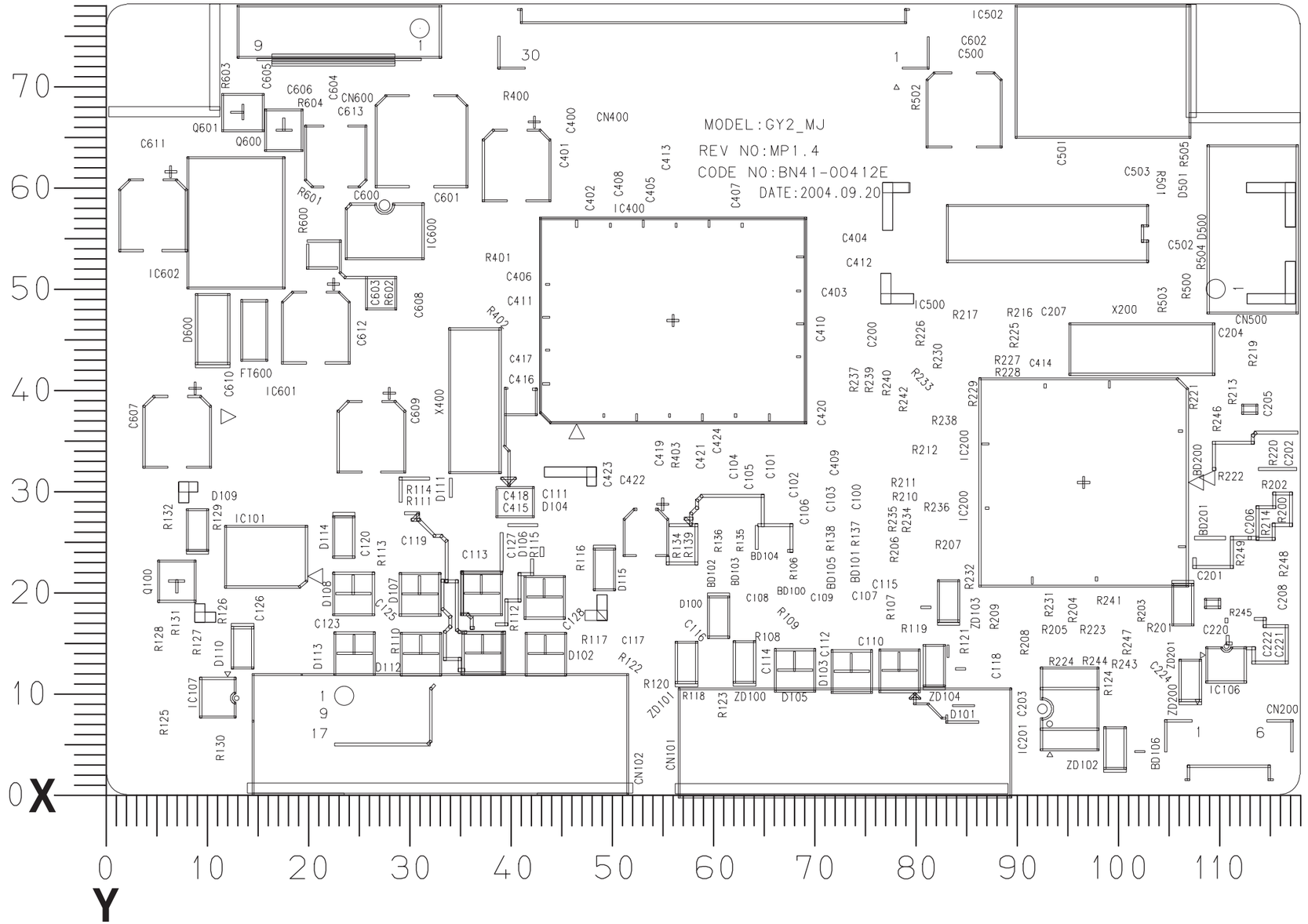
C167
C168

10-3 MJ17AS*/MJ19AS*/MJ19ES*/MJ19US* ANALOG PCB



Loc. No.	Description	X	Y
DIODE			
D100	DIODE-ZENER	60.5	16.0
D101	DIODE-SWITCHING	78.3	12.3
D103	DIODE-SWITCHING	73.6	12.2
D105	DIODE-SWITCHING	68.0	12.4
D600	DIODE-RECTIFIER	10.5	46.1
ZD200	DIODE-ZENER	107.1	11.3
ZD600	DIODE-ZENER	17.1	69.6
IC			
IC105	DIODE-TVS	55.0	14.0
IC106	DIODE-TVS	110.7	12.9
IC200	IC-MICROCONTROLLER	96.6	30.9
IC201	IC-EEPROM	95.2	8.5
IC400	IC-LCD CONTROLLER	56.0	46.9
IC600	FET-SILICON	27.5	55.8
IC601	IC-DUAL VOLTAGE REGULATOR	17.4	35.5

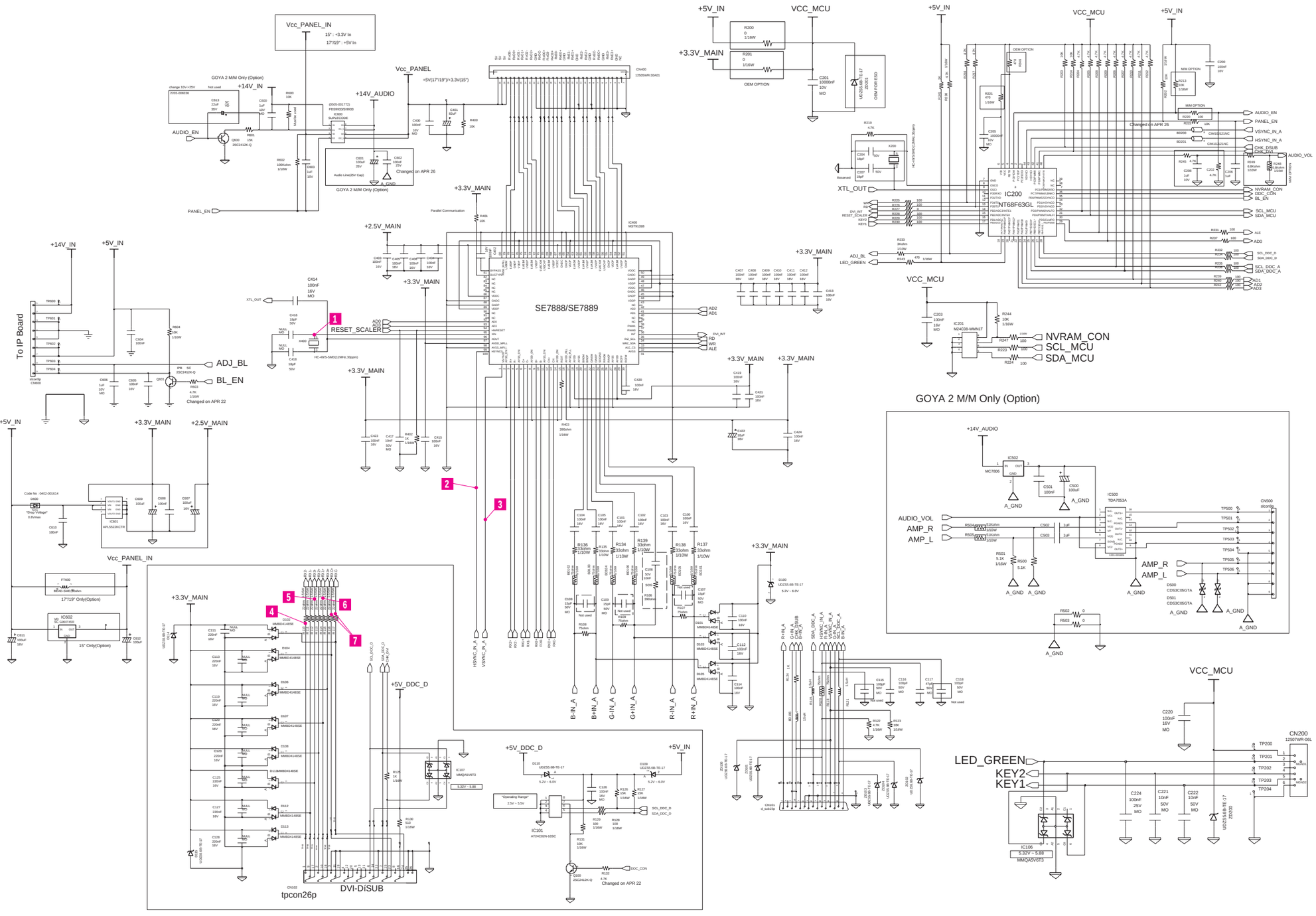
10-4 MJ17BS*/MJ19BS*/MJ19QS* DIGITAL PCB

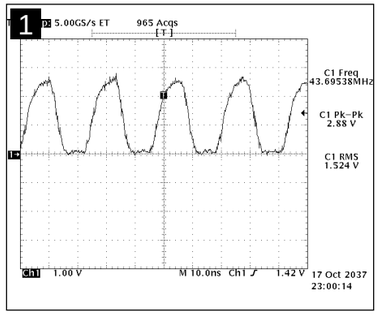


Loc. No.	Description	X	Y
DIODE			
D100	DIODE-ZENER	60.5	16.0
D101	DIODE-SWITCHING	78.3	12.3
D102	DIODE-SWITCHING	43.4	14.0
D103	DIODE-SWITCHING	73.6	12.2
D104	DIODE-SWITCHING	43.3	19.6
D105	DIODE-SWITCHING	68.0	12.4
D106	DIODE-SWITCHING	37.1	19.9
D107	DIODE-SWITCHING	31.0	19.9
D108	DIODE-SWITCHING	24.4	19.9
D109	DIODE-ZENER	9.0	26.2
D110	DIODE-ZENER	13.5	14.6
D111	DIODE-SWITCHING	37.2	14.0
D112	DIODE-SWITCHING	31.1	14.0
D113	DIODE-SWITCHING	24.5	14.0
D114	DIODE-ZENER	23.5	25.5
D115	DIODE-ZENER	49.2	22.3
D600	DIODE-RECTIFIER	10.5	46.1
ZD200	DIODE-ZENER	107.1	11.3
ZD600	DIODE-ZENER	17.1	69.6
IC			
IC101	IC-EEPROM	15.8	23.6
IC105	DIODE-TVS	55.0	14.0
IC106	DIODE-TVS	110.7	12.9
IC107	DIODE-TVS	11.0	9.6
IC200	IC-MICROCONTROLLER	96.6	30.9
IC201	IC-EEPROM	95.2	8.5
IC400	IC-LCD CONTROLLER	56.0	46.9
IC600	FET-SILICON	27.5	55.8
IC601	IC-DUAL VOLTAGE REGULATOR	17.4	35.5
TRANSISTOR			
Q100	TR-SMALL SIGNAL	7.0	21.1

11 Schematic Diagrams

❋ This Document can not be used without Samsung's authorization.

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5.00GS/s ET
965 Acqs
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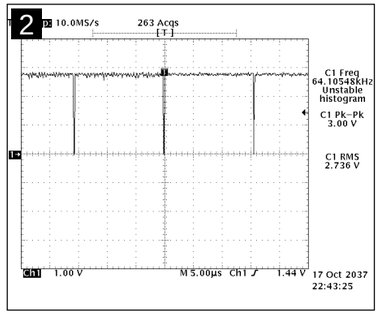
23:00:14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10.0MS/s
263 Acqs
C1 Freq
64.10548kHz
Unstable
histogram
C1 Pk-Pk
3.00 V
C1 RMS
2.736 V
Ch1 1.00 V
M 5.00µs Ch1 1.44 V
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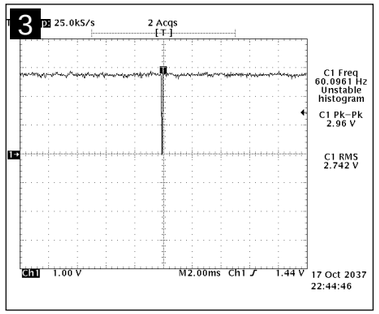
22:43:25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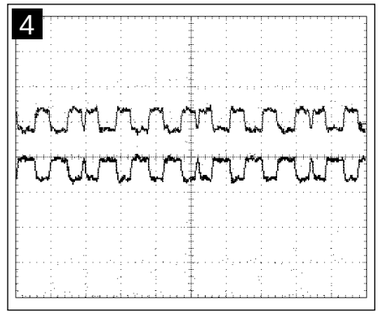
25.0kS/s
2 Acqs
C1 Freq
60.0961 Hz
Unstable
histogram
C1 Pk-Pk
2.96 V
C1 RMS
2.742 V
Ch1 1.00 V
M 20.0ms Ch1 1.44 V
17 Oct 2037
22:44:46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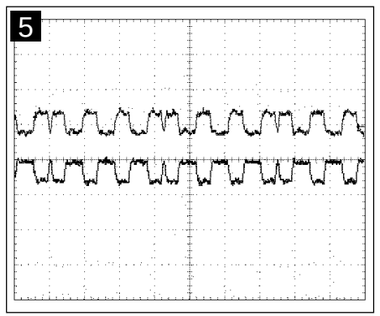
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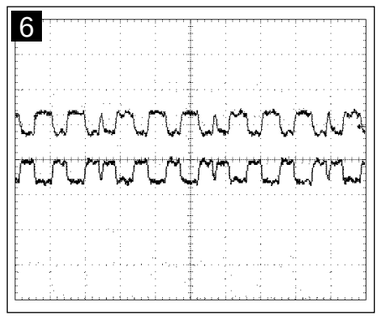
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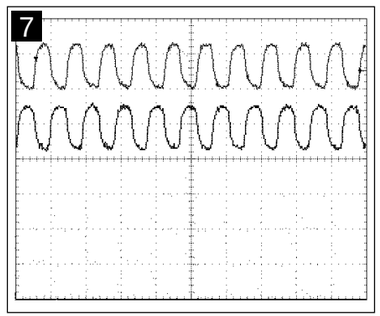
7

12 Panel Description

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LT140X1-002	BN07-00004A	SA	BN68-00239H	-
SEC	LT150XS-L01	BN07-00009A	SB		-
SEC	LT150XS-L01-B	BN07-00022A	SC		-
SEC	LTM150XS-L02	BN07-00005A	SD		-
SEC	LT181E2-132	BN07-00001A	SE		-
SEC	LT150XS-T01	BN07-00010A	SF		-
SEC	LTM181E3-132	BN07-00019A	SG		-
SEC	LT170E2-131	BN07-10001D	SH		-
SEC	LT181E2-131	BN07-10001E	SJ		-
SEC	LTM170E4-L01	BN07-00018A	SK		-
SEC	LTM240W1-L01	BN07-00015A	SL		-
SEC	LTM213U3-L01	BN07-00016A	SM		-
SEC	LTM150XH-L01	BN07-00026A	SN		-
SEC	LTM150XH-L03	BN07-00027A	SP		-
SEC	LTM150XS-L01	BN07-00032A	SQ		DELL(ZPD)
SEC	LTM181E4-L01	BN07-00034A	SR		PVA
SEC	LTM170EH-L01	BN07-00036A	SS		TN
SEC	LTM170E5-L01	BN07-00037A	SU		PVA
SEC	LTM150XH-L11	BN07-00041A	SV		-
SEC	LTM213U4-L01	BN07-00039A	SW		PVA
SEC	LTM150XH-L01(ZPD)	BN07-00045A	SX		ZPD
SEC	LTM150XH-L04	BN07-00046A	SY		"New panel with high brightness"
SEC	LTM170W1-L01	BN07-00047A	SZ		Panel for TV
SEC	LTM150XH-L06	BN07-00053A	EA		Panel for TV/ High luminance for 450cd _ SONY&EOS Team Panel for TV
SEC	LTM153W1-L01	BN07-00054A	EB		Use NIKE MODEL
SEC	LTM170EH-L05	BN07-00055A	EC		Panel EOS proj. for high brightness of 17" EH-L05
SEC	LTM170E5-L03	BN07-00056A	ED		Dell 1702FP pro. E4. EH mechanicalCompatible
SEC	LTM190E1-L01	BN07-00057A	EE		DELL 1900 FP
SEC	LTM181E5-L01	BN07-00061A	EF		18" narrow bezel GH18PS
SEC	LTM150XP-L01	BN07-00065A	EG		AMLCD PVA PANEL
SEC	LTM240W1-L02	BN07-00062A	EH		Panel for 15" Wide TV
SEC	LTM170EU-L01	BN07-00071A	EJ		Slim design, TN
SEC	LTM170E5-L04	BN07-00072A	EK		E5-L04 6 bits FRC... for IBM
SEC	LTA220W1-L01	BN07-00074A	EL		Panel for 22" TV
SEC	LTM170E6-L02	BN07-00075A	EM		AMLCD Narrow & slim design 17" PVAmode
SEC	LTM170W1-L01	BN07-00082A	EN		LTM170W1-L01 ZPD panel
SEC	LTM170EH-L01	BN07-00080A	EP		LTM170EH-L01 ZPD panel
SEC	LTM170E5-L01	BN07-00081A	EQ		LTM170E5-L01 ZPD panel
SEC	LTM170EH-L05	BN07-00083A	ER		LTM170EH-L05 ZPD panel
SEC	LTM170E5-L03	BN07-00084A	ES		LTM170E5-L03 ZPD panel
SEC	LTM170EU-L01	BN07-00085A	ET		LTM170EU-L01 ZPD panel
SEC	LTM170E5-L04	BN07-00086A	EU		LTM170E5-L04 ZPD panel
SEC	LTM170E6-L02	BN07-00087A	EV		LTM170E6-L02 ZPD panel
SEC	LTM150XH-L06	BN07-00091A	EW		"Color coordinates change for LCD TV"
SEC	LTM153W1-L01	BN07-00092A	EX		AMLCD WIDE 15",9/10
SEC	LTM170W1-L01	BN07-00100A	EY		"Color Coordinates change code management"
SEC	LTM170EH-L05	BN07-00097A	EZ		"LTM170E5-L05 Color Coordinates Change Panel Code"
SEC	LTA400W1-L01	BN07-00109A	S1		"PANEL of AMLCD 40"" TV"
SEC	LTM153W1-L01	BN07-00110A	S2		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM150XH-L06	BN07-00111A	S3		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM170W1-L01	BN07-00112A	S4		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM170EH-L05	BN07-00113A	S5		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM220W1-L01	BN07-00114A	S6		"ZPD Panel for AMLCD 22"" TV"

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LTM150XH-L06	BN07-00117A	S7		"ZPD Panel code"
SEC	LTM153W1-L01	BN07-00118A	S8		"ZPD Panel code"
SEC	LTM170WP-L01	BN07-00119A	S9		"PVA Panel for NIKE"
SEC	LTM213U4-L01	BN07-00039A	E1		21.3" NARROW
SEC	LTA260W1-L01	BN07-00121A	E2		VENUS
SEC	LTA220W1-L01	BN07-00074B	E3		"Panel B-level panel code for 22"" TV Panel "
SEC	LTA320W1-L01	BN07-00108A	E4		"Panel for AMLCD 32"" TV"
SEC	LTM213U4-L01	BN07-00124A	E5		NARROW BEZEL 21 " PANEL
SEC	LTM170E6-L04	BN07-00129A	E6		"HIGHLAND 17"" LOW PANEL (Panel only for TCO03)"
SEC	LTM190E1-L01	BN07-00088A	E7		LTM190E1-L01 ZPD panel
SEC	M150X4-L06	BN07-00137A	E8		15" Narrow & Slim panel
SEC	LTA170V1	BN07-00139A	E9		"17"" Panel for Muse 4:3 VGA TV"
SEC	LTM190E1-L02	BN07-00128A	E10		"New Panel from AMLCDl, Specification : 6bit Driver IC"
SEC	LTM170EX-L01	BN07-00143A	E11		"Development new Panel from AMLCD"
SEC	LTM170E8-L01	BN07-00144A	E12		"Development new Panel from AMLCD"
SEC	LTM170E6-L04	BN07-00129B	E13		"ZPD panel for AMLCD (Panel only for TCO03)"
SEC	LTA320W1-L02	BN07-00108B	E14		"Creat B-level Panel code for AMLCD 32"" TV"
SEC	LTM190E1-L03	BN07-00151A	E15		"Development new 19"" Panel form AMLCD (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134A	E16		"AMLCD 24"" panel development"
SEC	LTM190E1-L02	BN07-00128B	E17		"New Panel from AMLCD, Specification : 6bit Driver IC(ZPD)"
SEC	LTM190E4-L01	BN07-00145A	E18		"AMLCD 24"" new panel development"
SEC	LTM170E8-L01	BN07-00158A	E19		"ZPD code derivation"
SEC	LTM170EX-L01	BN07-00159A	E20		"ZPD code derivation"
SEC	LTM190E1-L03	BN07-00151B	E21		"Creat new panel code for AMLCD 19"" (Panel only for TCO03)"
SEC	LTA460H1-L01	BN07-00157A	E22		"creat panel code for AMLCD 46"" TV "
SEC	LTM170EU-L11	BN07-00160A	E23		"creat new panel code for AMLCD 17"" (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134B	E24		"24"" panel ZPD code derivation"
SEC	LTM190E4-L01	BN07-00145B	E25		"AMLCD 19"" ZPD Panel code derivation"
SEC	LTM240W1-L03	BN07-00134B	E26		24" panel ZPD code derivation
SEC	LTM150XO-L01	BN07-00164A	E27		AMLCD 15" XO-L01 new panel development
SEC	LTM150XO-L01	BN07-00164B	E28		AMLCD 15" XO-L01 ZPD code derivation
SEC	LTM170EU-L11	BN07-00160B	E29		AMLCD 17" NEW panel code derivation
SEC	LTA320W2-L01	BN07-00172A	SPZ		AMLCD 32" NEW panel
SEC	LTM213U4-L01	BN07-00124B	SPZ		21.3" Narrow PANEL ZPD Panel derivation
SEC	LTM170EU-L11	BN07-00189A	STH		AMLCD EU-L11 Pb free panel code derivtion
SEC	LTM170EU-L11	BN07-00189B	STZ		AMLCD EU-L11 Pb free panel ZPD code derivation
SEC	LTM240W1-L04	BN07-00188A	SPH		24" A-DCC new panel development
SEC	LTM190EX-L01	BN07-00191A	STH		AMLCD 19" TN new Panel
SEC	LTM190EX-L02	BN07-00191B	STZ		AMLCD 19" TN new Panel ZPD derivation
SEC	LTA230W1-L02	BN07-00184A	SPZ		AMLCD 23" 16:9 new Panel
SEC	LTA260W2-L01	BN07-00185A	SPZ		AMLCD 26" 16:9 new Panel
SEC	LTM240M1-L01	BN07-00195A	SPH		24" panel with high brightness deveiopment
SEC	LTA400W2-L01	BN07-00186A	SPZ		AMLCD 40" 16:9 new Panel
SEC	LTM150XO-L01	BN07-00197A	STH		AMLCD 15" XO-L01 Pb free panel code
SEC	LTM150XO-L01	BN07-00197B	STZ		AMLCD 15" XO-L01 Pb free panel ZPD code
SEC	LTM170EU-L21	BN07-00202A	STZ		AMLCD EU-L21 ZPD new code derivation
SEC	LTA460W2-L03	BN07-00187A	SPZ		BEETOVEN 46"ZPD new Panel
CPT	CLAA150XG09	BN07-00141A	PA		CPT 15" Monitor new panel development
CPT	CLAA170EA02	BN07-00148A	PB		17" CPT NEW development panel
CPT	CLAA170EA02	BN07-00148B	PC		17" CPT ZPD panel code derivation
CPT	CLAA150XG09	BN07-00141B	PTZ		"CPT 15"" panel ZPD code derivation (GOYA-PJT)"
CPT	CLAA150XP01	BN07-00173A	PTH		CPT 15" PSWG code derivation
CPT	CLAA150XP01	BN07-00173B	PTZ		CPT 15" PSWG panel ZPD code

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
CPT	CLAA170EA07	BN07-00174A	PTH		"CPT 17"" PSWG panel code derivation?
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17""""""" PSWG type new Panel code"""
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17" PSWG type new Panel code
TOSHIBA	LTM15C419(A)	BN07-00002A	TA		-
TOSHIBA	LTM15C423(B)	BN07-00006A	TB		-
TOSHIBA	LTM18C161	BN07-00008A	TC		-
TOSHIBA	LTM15C443	BN07-00031A	TD		-
TOSHIBA	LTM15C458	BN07-00043A	TE		-
TOSHIBA	LTM15C458S	BN07-00077A	TF		"TSB 15"" high brightness Panel"
TOSHIBA	LTM15C458	BN07-00078A	TG		Toshiba ZPD panel
TOSHIBA	LTM15C458S	BN07-00099A	TH		TSB LTM15C458S (ZPD)
HANNSTAR	HSD150MX41A(A)	BN07-00020A	NA		"TTL type"
HANNSTAR	HSD150MX12	BN07-00030A	NB		"TTL type"
HANNSTAR	HSD170ME13	BN07-00180A	NTH		Hannstar 17" TN new panel development
HANNSTAR	HSD170ME13	BN07-00180B	NTZ		Hannstar 17" TN new panel development ZPD code derivation
TORISAN	TM150XG-22L03(A)	BN07-00021A	RA		-
TORISAN	TM150XG-26L06	BN07-00042A	RB		-
TORISAN	TM181SX-76N01	BN07-00048A	RC		-
TORISAN	TM150XG-26L06	BN07-00059A	RD		15" XGA TN MODE(ZPD)
TORISAN	TM290WX-71N31	BN07-00063A	RE		"RS24NS (TORISAN 29"" NEW PANEL)"
TORISAN	TM396WX-71N31	BN07-00064A	RF		"RS24NS (TORISAN 40"" NEW PANEL)"
TORISAN	TM150XG-26L09	BN07-00073A	RG		"Panel for 15"" TV"
TORISAN	TM150XG-26L10	BN07-00089A	RH		"L10(change except D/IC) ZPD"
TORISAN	TM150XG-26L10	BN07-00090A	RJ		L10 NORMAL
TORISAN	TM190SX-70N01	BN07-00098A	RK		Torisan 19" Panel
TORISAN	TM181SX-76N01	BN07-00106A	RL		ZPD Panel code
TORISAN	TM190SX-70N01	BN07-00107A	RM		ZPD Panel code
TORISAN	TM290WX-71N31	BN07-00115A	RN		"Color Coordinates change panel for TORISAN 29"" TV"
TORISAN	TM396WX-71N31	BN07-00116A	RP,Q		"Color Coordinates change panel for TORISAN 40"" TV"
TORISAN	TM22OWX-71N31	BN07-00125A	RR		"Development TORISAN 22"" TV PANEL (ZPD)"
TORISAN	TM22OWX-71N31	BN07-00127A	RS		"Development TORISAN 22"" TV PANEL (HPD)"
TORISAN	TM396WX-71N32A	BN07-00150A	RT		120V inverter Exclusive panel
TORISAN	TM190SX-70N02	BN07-00154A	RMH		Torisan 6bit panel code Derivation
TORISAN	TM190SX-70N02	BN07-00154B	RMZ		Torisan 6bit panel code Derivation
SHARP	LQ181E1DG11(A)	BN07-10001C	PA		-
SHARP	LQ150X1LW71	BN07-00067A	PB		SHARP 15" PVA PANEL
HITACHI	TX38D12VC0CAA(A)	BN07-00003A	HA		-
HITACHI	TX43DVCOCAB	BN07-00060A	HB		17" SXGA PVA MODE
HITACHI	TX43D15VC0CAB	BN07-00101A	HC		ZPD Panel
HITACHI	TX51D11VC0CAB	BN07-00122A	HD		20.1" NARROW
HITACHI	TX54D11VC0CAB	BN07-00123A	HE		21.3" NARROW
HITACHI	TX80D12VC0CAB	BN07-00169A	HIZ		"Development new panel for Hitachi 32"" TV (ZPD)"
HITACHI	TX54D11VC0CAB	BN07-00123B	HIZ		Hitachi 21.3"ZPD panel
IBM	ITSX94S	BN07-00017A	IA		-
UNIPAC	UM170E0	BN07-00028A	UA		Loaded by cisdba
HYUNDAI	HT15X13	BN07-00035A	DA		-

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
HYUNDAI	HT17E11-200	BN07-00049A	DB		TN MODE
HYUNDAI	HT17E11-300	BN07-00093A	DC		HT17E11-300 ZPD panel
HYUNDAI	HT17E11-400	BN07-00094A	DD		HT17E11-400 normal panel
HYUNDAI	HT17E11-400	BN07-00095A	DE		HT17E11-400 ZPD panel code
HYUNDAI	HT17E12	BN07-00096A	DF		HT17E12 (Narow & slim Design)
HYUNDAI	HT17E12	BN07-00105A	DG		ZPD Panel code
HYUNDAI	HT15X15-D00	BN07-00146A	DH		"Development for Ares 15"" Hydis TV"
HYUNDAI	HT15X15-D01	BN07-00146B	DJ		"Derivation panel HPD for Ares 15"" Hydis TV "
HYUNDAI	HT17E13-100	BN07-00167A	DTH		"PINEHURST-2(IBM) PJT 17"" HYDIS PANEL Derivation"
HYUNDAI	HT17E13-100	BN07-00167B	DTZ		"PINEHURST-2(IBM) Hydis 17"" ZPD code Derivation"
ACER	L170E3	BN07-00044A	AA		TN(ADT)
ACER	M170EN05	BN07-00076A	AB		AU 17" Panel (Narrow & slim design)
ACER	M170EN05	BN07-00102A	AC		ZPD Panel code
ACER	M190EN02	BN07-00170A	AMH		"AU Monitor 19"" new panel development (P19-1S)"
ACER	M190EN02	BN07-00170B	AMZ		"AU 19"" ZPD code derivation (ZPD)"
ACER	M170EN06	BN07-00171A	ATH		"AU Monitor 17"" New panel development"
ACER	T260XW01	BN07-00163A	AMZ		"AU 26"" new panel development (NF26EO)"
ACER	A201SN01	BN07-00177A	ATZ		"AU TV panel 20.1"" TN SVGA new panel development"
ACER	M170EN06	BN07-00171B	ATZ		"AU Monitor 17"" ZPD code Derivation
ACER	T315XW01	BN07-00194A	AMZ		AU 32" new
ACER	M170EG01	BN07-00192A	ATH		AU TN PSWG type new Panel code
ACER	M170EG01	BN07-00192B	ATZ		AU TN PSWG type NEW panel code derivation
CHIMEI	M170E3-LO1	BN07-00050A	CA		TN PANEL
CHIMEI	M150X3-L01	BN07-00051A	CB		COMPATIBLE
CHIMEI	M170E4-L01	BN07-00052A	CC		MVA PANEL
CHIMEI	M150X2-L01	BN07-00066A	CD		CHIME 15"I PVA PANEL
CHIMEI	M150X3-L01	BN07-00079A	CE		Chimei ZPD panel
CHIMEI	M170E3-L01	BN07-00103A	CF		ZPD Panel code
CHIMEI	M170E4-L01	BN07-00104A	CG		ZPD Panel code
CHIMEI	V296W1-L01	BN07-00120A	CH		MVA
CHIMEI	M170E6-L02	BN07-00126A	CJ		HIGHLAND 17" LOW PANEL
CHIMEI	M190E2-L01	BN07-00131A	CK		GH19AS,BS CHIMEI PANEL
CHIMEI	M150X4-L06	BN07-00137A	CL		15" Narrow & Slim panel
CHIMEI	M170E6-L01	BN07-00133A	CM		"2003-03-11 vendor change"
CHIMEI	M170E6-L01	BN07-00133B	CN		"ZPD derivation panel"
CHIMEI	V201V1-T01	BN07-00135A	CP		"CHIMEI 20.1"" panel development"
CHIMEI	M170E6-L02	BN07-00126B	CQ		"HIGHLAND 17"" LOW PANEL ZPD derivation panel"
CHIMEI	M170E6-L05	BN07-00152A	CR		"CMO 17"" new panel development code"
CHIMEI	M170E6-L05	BN07-00152B	CS		"CMO 17"" ZPD panel code derivation"
CHIMEI	M150X4-L06	BN07-00137B	CT		Chimei 15" Narrow & Slim panel ZPD derivation
CHIMEI	M170E5-L05	BN07-00165A	CTH		CMO 17" new panel development code (GOYA2-PJT)
CHIMEI	M170E5-L05	BN07-00165B	CTZ		CMO 17" ZPD panel(GOYA2-PJT)